Nortel's challenge CEO Bill Owens spent his first year on the job cleaning things up. Now comes the really hard part. PAGE 8.

Open source play Flummoxed by expensive management systems, users are looking at open source products. PAGE 30.

NetworkWorld

The leader in network knowledge ■ www.networkworld.com

May 16, 2005 ■ Volume 22, Number 19

Energy firm earns net award

■ BY JOHN DIX

A network overhaul that linked corporate locations with optical Ethernet, built in QoS for demanding new applications and swapped Centrex for VoIP earned PPL Corp. *Network World's* top honors in the first-ever Renovator Award.

Renovator Award finalists (from left): Erik Durand of Psomas, Jim Klein from the Saugus Union School District (see story on the runners-up, page 16) and David Stever of PPL.

Celebrated at an event during Interop in Las Vegas, PPL was one of three Renovator Award finalists, the others being the Saugus Union School District in California, and Psomas, a civil engineering company in Costa Mesa, Calif. (see stories page 16).

The awards, sponsored by Juniper Networks, were designed to recognize outstanding network projects, with entries screened by a panel of judges that consisted of Bob Brown, *Network World* executive news editor; Lee Doyle, group vice president at IDC; Daniel Golding, senior analyst at Burton Group; Johna Till Johnson, chief research officer of Nemertes Research and a *Network World* columnist; Jeff Wilson, a principal analyst at Infonetics; and Robert Whiteley, an analyst at Forrester Research.

PPL took home the gold because of the strides it has

See Renovator, page 14

Microsoft sells ID mgmt. plan

■ BY JOHN FONTANA

SAN FRANCISCO -— Microsoft last week laid out a model for a distributed identity infrastructure designed to simplify access to corporate resources and protect user privacy across the Internet.

The model begins with a seven-point conceptual representation of digital identity that Microsoft has been discussing with industry experts, including the open source community, for a month. Last week, Microsoft released a description of its Identity Meta-system architecture, which adheres to the conceptual representation. The company also said it was readying client, server and development tools for users to build an open and extensible identity system based on Web services protocols.

The goal is to provide users with the means to join, or federate, their identity systems internally and across the Internet regardless of the platforms they run on or technology they use for identity, including Kerberos, X.509 and the

See Microsoft, page 52

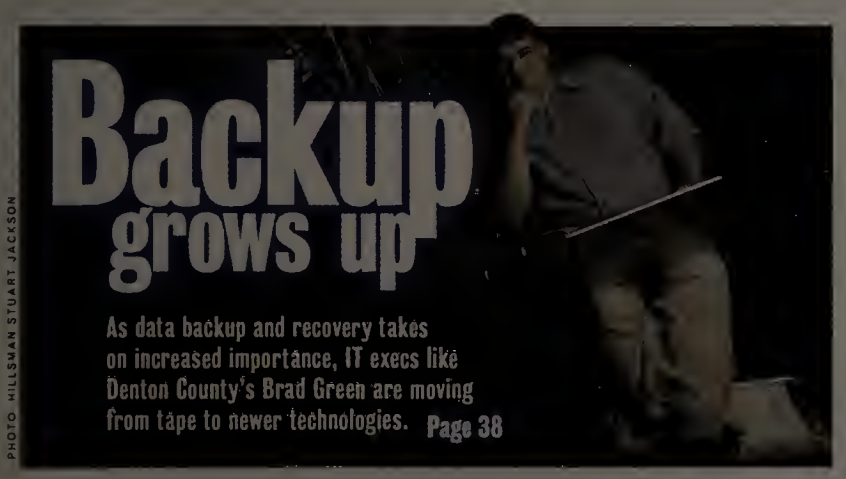


PHOTO: HILLSMAN STUART JACKSON

Backup grows up

As data backup and recovery takes on increased importance, IT execs like Denton County's Brad Green are moving from tape to newer technologies. Page 38

NEWSPAPER ■ $5.00

D1D

Extortion via DDoS on the rise

■ BY DENISE PAPPALARDO AND ELLEN MESSMER

Criminals are increasingly targeting corporations with distributed denial-of-service attacks designed not to disrupt business networks but to extort thousands of dollars from the companies.

Those targeted are increasingly deciding to pay the extortionists rather than accept the consequences, experts say. While reports of this type of crime have circulated for several years, most victimized companies remain

See Extortion, page 12

A Wider Net

A robot in your future?

Not unless you plan to live for a really, really long time.

■ BY NEAL WEINBERG

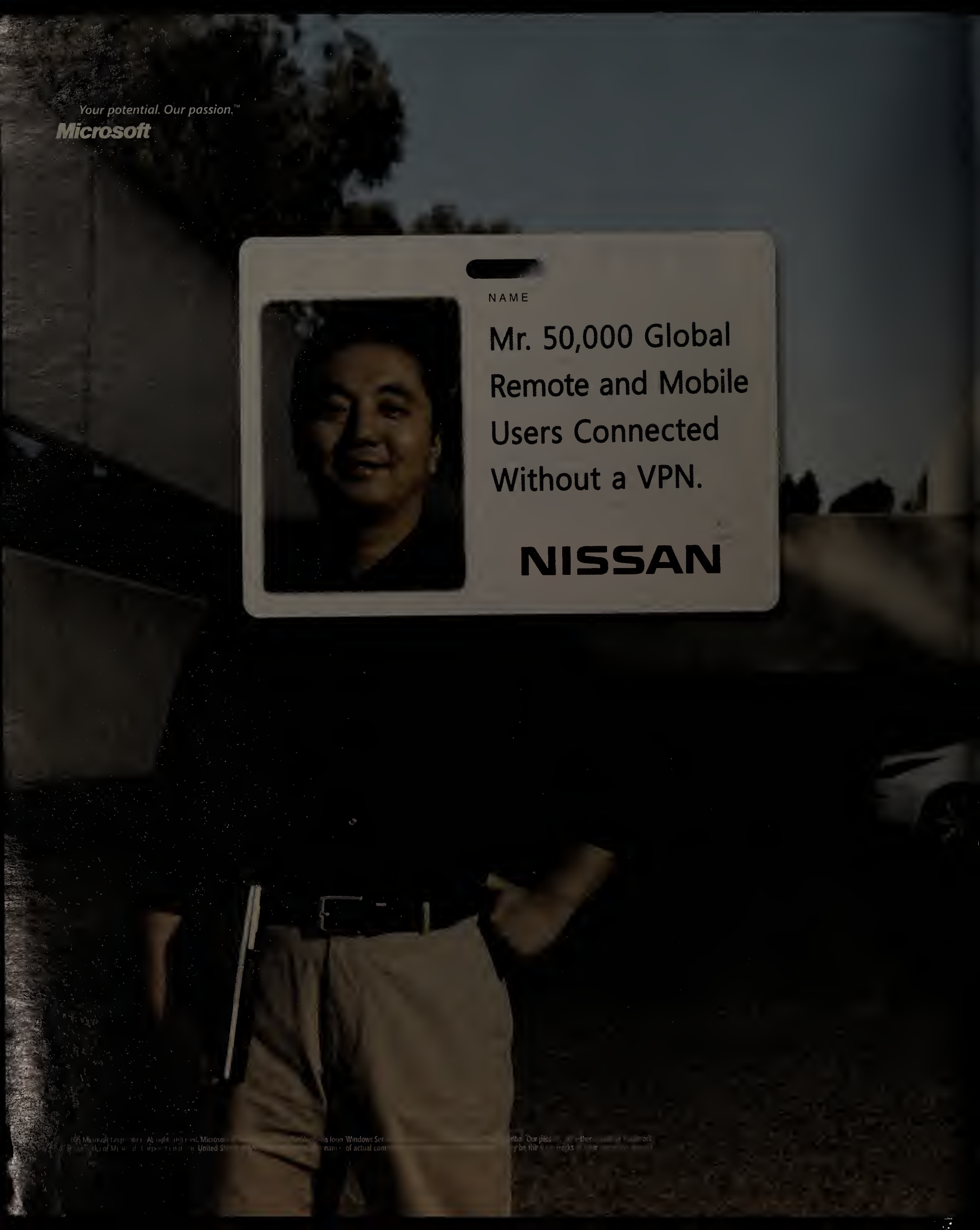
Joe Engelberger formed the first robotics company in 1957, sold the first industrial robotic arm to General Motors in 1962 and even demoed his Unimate robot on "The Tonight Show" in 1966 in order to popularize the idea that robots would one day be part of our daily lives.

Today, we've got iPods, Xboxes, PDAs, GPS, DVDs, DSL, Wi-Fi, smart phones, hot spots, laptops and TiVo. But where are all the robots? Shouldn't we all have robots mowing our lawns, cleaning our houses and catering to our every need by now?

"I'm surprised and disappointed it hasn't happened," Engelberger said last week at the RoboBusiness Conference in

See Robots, page 10

DAN VASCONCELLOS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"At Nissan, we expect to save at least $135 million annually thanks to the efficiencies that Windows Server 2003 and Exchange Server 2003 are helping us achieve."

Toshihiko Suda
Senior Manager, *Nissan Motor Company, Ltd.*

Make a name for yourself with Windows Server System. An upgrade to Microsoft Windows Server System made it possible for 50,000 worldwide employees at Nissan Motor Company to have more secure remote access to their e-mail and calendars from any Internet connection, without the hassle and expense of a VPN. Here's how: By deploying Windows Server 2003 and Exchange 2003, not only did Nissan IT meet the CEO's demand for better global collaboration, they expect to save at least $135 million by streamlining their messaging infrastructure. To get the full Nissan story or find a Microsoft Certified Partner, go to **microsoft.com/wssystem**

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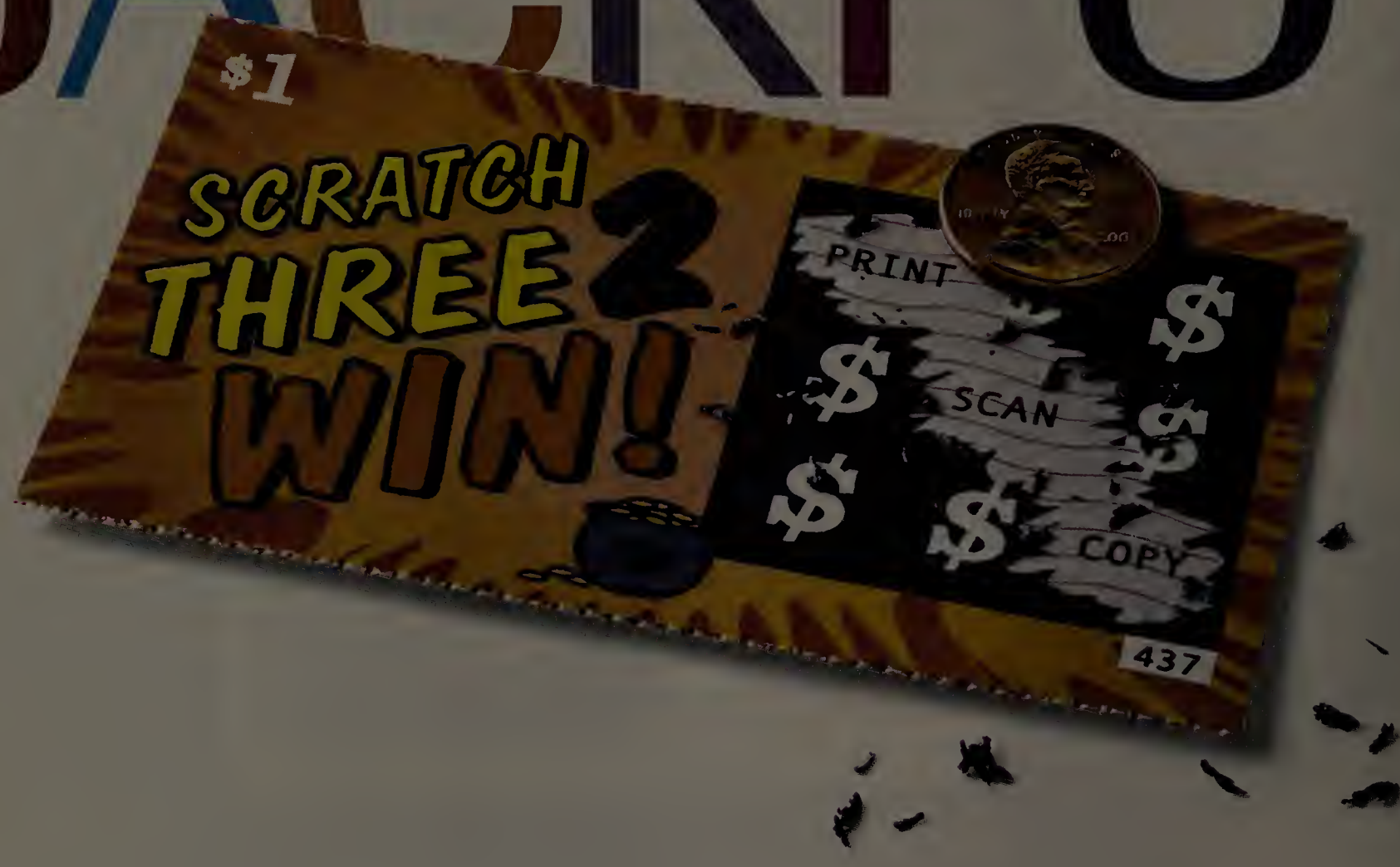

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Network World

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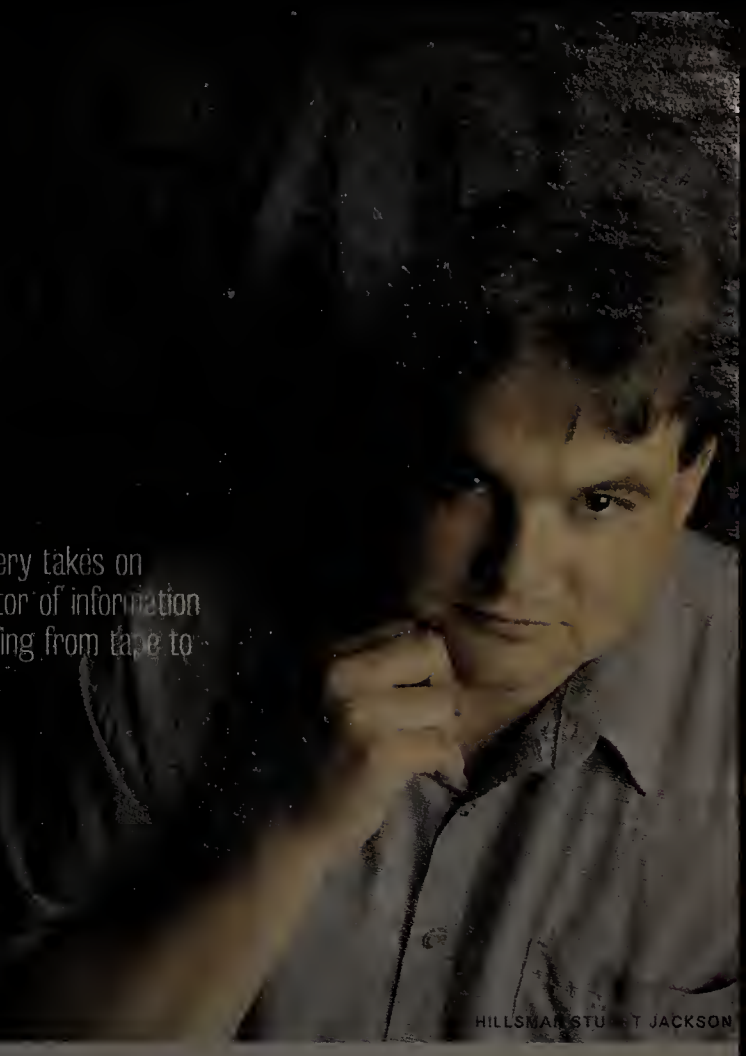

HILLSMAN STUART JACKSON

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Breaking News

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Exclusive

Fighting spam with challenge and response?
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Crispy critters
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Desktop management Buyer's Guide
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Networking for Small Business: Multifunction printers
If you're looking for printers that can do it all, check out the reviews of several devices from our partner, *PC World.*
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Audio: Network World Survivor
What companies and technologies are not long for this world? Who is well-suited to thrive? Listen in as *Network World* experts debate the merits of each potential winner and loser.
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Online help and advice

Nutter's Help Desk
Easy remote access
Help Desk guru Ron Nutter helps a user find a way to remotely access a Webcam surveillance system in his office.
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NAS load balancing
Storage forum
In our storage forum, a user asks if it's possible to load balance several HP network-attached storage systems.
DocFinder: 7139

Wireless switching: Things to consider
Spencer Giacalone, a vice president at a major international financial firm, offers up a list of seven key items you have to consider before going to a switched wireless network.
DocFinder: 7140

Compendium
SSH worms
Executive Online Editor Adam Gaffin points you to a new MIT paper that discusses the possibility of widespread worm attacks via this supposedly secure protocol — as well as a possible fix.
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New Bits

Feds seek bids on $20B telecom project

■ The U.S. government is seeking bids on a 10-year, $20 billion telecommunications services program that is believed to be the largest pending network deal in the world — and carriers say they're ready to respond. The Networx program will provide legacy and leading-edge voice, data and video services to all U.S. federal agencies. Most major U.S. telecom carriers — AT&T, MCI, SBC, Sprint, Qwest and Verizon — plan to bid on it. The General Services Administration anticipates awarding multiple contracts under its Networx program, which is divided into two parts: Universal and Enterprise. Networx Universal covers 37 domestic and international telecom services, ranging from older frame relay and ATM to cutting-edge VPNs and VoIP. Likely Universal bidders include AT&T, MCI, Sprint, SBC and Qwest. Networx Enterprise, which is geared toward smaller carriers, includes a core set of IP and wireless services in particular geographic regions. Likely Enterprise bidders include Global Crossing, Verizon, Level 3 Communications, WilTel Communications, IDT and Broadwing Communications.

Defense Department hacker gets jail term

■ A 21-year-old Indiana man was slapped with a 21-month jail sentence for his role in a hacking attack that compromised computers at the Department of Defense, law enforcement officials recently revealed. The attack, which was launched by international hacking gang Thr34t Krew, took place between October 2002 and March 2003. Former Thr34t Krew member Raymond Paul Steigerwalt was sentenced for one count of conspiracy to commit fraud and related activity in connection with computers and one count of possession of child pornography, officials said. He also was ordered to pay restitution of $12,000 to the Defense Department. Steigerwalt and his gang were accused of creating a worm that infected Internet-connected computers. The worm installed a Trojan, which let them control infected machines. It was unclear what damage was done at the Defense Department.

Trend Micro buys anti-spyware company

■ Trend Micro last week announced its intent to acquire privately held InterMute for $15 million. InterMute makes the SpySubtract line of anti-spyware software products. Trend Micro last month released its own line of anti-spyware software — OfficeScan Anti-Spyware Suite, as well as InterScan Anti-Spyware Suite. Trend Micro executives last week sought to assure customers that the company would support the Trend Micro and InterMute products for several months. But Trend Micro said it intends to have an integrated, centrally managed anti-spyware product that includes anti-virus protection by year-end.

COMPENDIUM

Today's helpful hint

If you take pictures of your hard-working staff for an in-house magazine, you might want to make sure you don't include any photos showing whiteboards with people's network user names and passwords. ***Find out more at www.networkworld.com, DocFinder: 7132.***

TheGoodTheBadTheUgly

"Mumbles" the mayor. You have to give this politician's camp points for getting ahead of the tech curve. Boston Mayor Thomas Menino regularly gets poked fun at by critics because of his mumbling style of speech. While the mayor has actually embraced his reputation for mumbling to make him seem more of an everyman's candidate, *The Boston Globe* last week reported that his camp has also gobbled up addresses such as meninomumbles.com just to make sure they don't fall into the wrong hands.

Soccer fans cry foul over virus. SophosLabs has warned users, particularly in Germany, about a new e-mail worm that looks like a free offer for 2006 World Cup soccer tickets. When the attached file carried by the W32/Sober-N worm is opened by users, their machines are infected and the worm mass-mails itself to other e-mail addresses listed on the infected PCs. ▼

The Cisco kids. A theft of computer source code from Cisco reported a year ago has led to a wide-ranging investigation of potential criminal activity involving multiple server break-ins in several countries, according to the FBI. Swedish police recently confiscated computer equipment from a 16-year-old during an investigation related to the Cisco theft. In addition, U.K. police executed two search warrants in September, and arrested a 20-year-old man and confiscated his computer equipment before releasing the suspect. "As a result of recent activities that have taken place, the criminal activity appears to have stopped," an FBI spokesman says.

Mozilla patches 'extremely critical' Firefox flaws

■ The Mozilla Foundation has patched two "extremely critical" security holes in its Firefox browser that were reported last week. The flaws have been patched in a Firefox 1.0.4 release, which was posted to the Mozilla.org Web site. When used in tandem, the two bugs could let an attacker take control of a user's system by exploiting the way Firefox handles software installations from certain trusted Web sites. The Mozilla Foundation reports 54 million Firefox downloads since the 1.0 release in November. Firefox has 6.8% of the market, according to WebSideStory.

Sun, Microsoft redux

■ More than a year after they buried the hatchet and announced a collaboration agreement, Microsoft and Sun last week said they were taking steps to address what Sun called customers' top request: single sign-on between Microsoft's Windows Server and Sun's Solaris operating system and Java Enterprise System. Sun and Microsoft's initial work together has focused on drafting standards. Last year they jointly worked on two single-sign-on protocols; Web Single Sign-On Metadata Exchange and Web SSO Interoperability Profile, which they plan to support in Windows Server and Java Enterprise System. The protocols are intended to enable single sign-on across domains using two different identity standards, WS-Federation and the Liberty Alliance's Identity Federation Framework.

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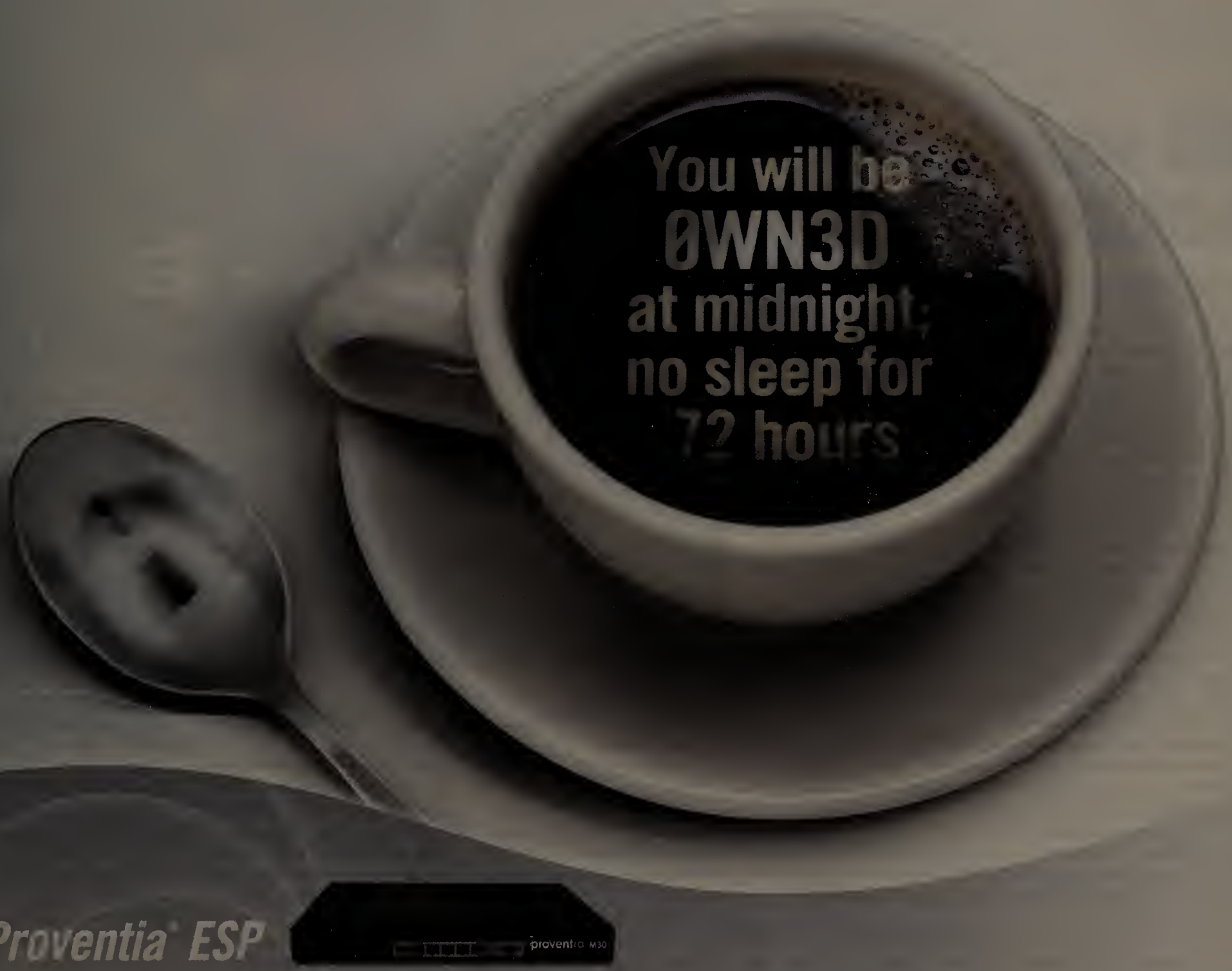

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Nortel's Owens has his work cut out

A year after taking reins, challenges trump accomplishments.

■ BY JIM DUFFY

During his first year at the helm, Bill Owens has steered Nortel through perhaps the most challenging period in its 110-year history.

The company recently completed a series of financial restatements and now is emerging from a quagmire created by a massive accounting scandal that predated Owens' hiring as CEO (he had been on the board since 2002). Nortel is looking ahead with a renewed corporate network strategy that includes an aggressive campaign to attract federal government business and is underscored by the hiring of two former Cisco executives to top-level positions.

Based on its most recent financial results, Nortel clearly has lots of work to do. Its profits plummeted 75% in the fourth quarter, and the company experienced market share losses and declining sales in LAN switching, wireless and optical.

Nortel, which expects to release first-quarter results later this month, declined requests to interview Owens. But during a recent conference call with analysts to discuss fourth-quarter and full-year 2004 results, he acknowledged that last year was tough. Owens, who previously led now-defunct satellite communications provider Teledesic, said: "I'm not happy with the results for 2004 but the company is now stable."

One thing Nortel has to build on is its solid customer base, Owens said.

"We're emerging as a stronger company, building on integrity and ethics," he added.

Among Owens' accomplishments as head of Nortel are:

- Navigating the company through audits, investigations and restatements.
- Reorganizing the company into carrier and enterprise business units.
- Naming ex-Cisco executives and enterprise network industry veterans Gary Daichendt and Gary Kunis as president and COO, and CFO, respectively.
- Maintaining market leadership in carrier VoIP.
- Acquiring federal systems integrator PEC Solutions to better compete on U.S. government contracts.
- Appointing a chief compliance and ethics officer.

Nortel might be morally stronger, but the same cannot be said for its position in the market.

"We're emerging as a stronger company, building on integrity and ethics."

Bill Owens
CEO, Nortel

Reversal of fortune

Three of Nortel's four business units experienced significant declines in 2004.

Annual revenue in millions

Business units	2003	2004	Percent change
Wireless networks	$4,[illegible]	$1,[illegible]	[illegible]
Enterprise networks	$2,589	$2,354	-9%
Wireline networks	$2,005	$1,723	-14%
Optical networks	$1,179	$906	-23%
Other	$31	$6	-8[illegible]
Total	$10,193	$9,828	-4%

The company remains a distant No. 2 to Cisco in Ethernet LAN switching. It lost a full percentage point of share in 2004, to 4.7% of the $13.1 billion worldwide market for Layer 2, 3 and 4-7 switching, according to Dell'Oro Group. In Gigabit Ethernet switching, Nortel forfeited almost two percentage points, from 7.4% to 5.6% of the $6 billion worldwide market, according to Dell'Oro. Cisco commands 72% of the Layer 2, 3 and 4-7 Ethernet switch market, and 69% of the Gigabit Ethernet switch market.

Nortel's enterprise revenue, which accounts for 24% of the company's annual sales and amounts to its second-largest business, dropped 31% in the fourth quarter to $651 million, and 9% for all of 2004 to $2.4 billion.

Some analysts say the problem is that Nortel doesn't have the enterprise "DNA," a situation acknowledged by Owens last summer when he reorganized the company.

"I'd like to see them stop being quite so bashful, beat their chest a little bit more and really try to define themselves as a major enterprise vendor instead of being happy with being a distant No. 2," says Zeus Kerravala, an analyst at The Yankee Group.

In wireless infrastructure, which is Nortel's biggest business unit and accounts for virtually half of its $9.8 billion 2004 revenue, Nortel lost more than two percentage points in Code Division Multiple Access (CDMA) — from 21.9% to 19.8% of the $8.8 billion worldwide market in 2004, according to Dell'Oro. Nortel also lost almost two percentage points in the $4.8 billion market for the newer Wide-band CDMA last year, from 4.5% to 2.8%.

"Management concedes that the company has lost market share and that customers have been concerned about the company's financial difficulties," stated UBS Warburg analyst Nikos Theodosopoulos in a bulletin on Nortel's fourth quarter. "We note that while the overall wireless infrastructure market grew about 26% in 2004, Nortel's wireless segment grew only 10% over the same time frame."

Wireless revenue dropped 11% between Nortel's third and fourth quarters. Sales of wireline equipment — which includes frame relay and ATM switches — declined 19% in the quarter and 14% for the year; and optical fell 28% in the quarter and 23% for the year.

"Because of all their difficulties they may be losing some ground," says Dana Cooperson, an analyst with RHK. "Optical was always such a big area for them in the past and they're having a little bit more trouble, facing a little bit more competition lately in that area."

Alcatel and Fujitsu had the strongest revenue growth in optical transport in 2004, with 29% and 22%, respectively, according to Dell'Oro. Alcatel is the revenue share leader in this $6.9 billion worldwide market, followed by Nortel, Lucent and Fujitsu.

Nortel also has been late shipping some key products. For example, release of the company's MPE 9000 multi-service edge router has been pushed out to mid-2005 from late 2004. Owens cited this delay as a factor in Nortel missing out on becoming one of BT's eight strategic suppliers for its $19 billion 21st Century Network project.

Nonetheless, Owens has high hopes for 2005. Nortel expects to grow revenue in the first quarter and full year of 2005. ■

EMC storage router to make debut

■ BY DENI CONNOR

EMC this week is expected to unveil its much-anticipated storage router, a hardware and software package designed to optimize use of storage resources and ease the movement of data across heterogeneous environments.

The company's Invista offering, which EMC officials have been talking up for at least a year, is set to debut at EMC's Technical Summit in New Orleans. EMC declined to say any more about it or any other new offerings until this week's event.

Invista, which translates into "in sight" in Italian, is an out-of-band appliance built on a dual-node server cluster that connects to a Fibre Channel switch within a storage-area network (SAN). The appliance runs software that inspects every packet of data passing from host computers through a Fibre Channel switch to a storage array. It classifies the data and assigns it a unique identifier so that it can be organized, tracked and managed across a pool of storage resources.

The storage router works with Cisco's MDS 9000 family of director-level switches and Brocade Communications' Silkworm Fabric Application AP7420. It also will work with McData's switches, pending certification from EMC. Invista conforms to the Fabric Application Interface Standard, which features a common API for implementing storage applications within a SAN environment.

Invista can be managed via a Java-based GUI, command-line interface or EMC's ControlCenter software.

Michael Passe, senior storage engineer for CareGroup/Beth Israel Deaconess Medical Center in Boston, says his team plans to use Invista in conjunction with Cisco MDS 9000 switches to virtualize data. The healthcare outfit has 50T bytes of data stored on EMC Symmetrix and Clariion arrays.

EMC's Invista will compete with IBM's in-band, fabric-based SAN Volume Controller and Hitachi's array-based TagmaStore array. Because Invista delegates I/O processing to the Fibre Channel switch, I/O is not slowed, EMC says. The company says it expects the system to support 30,000 to 40,000 I/Os per second.

"The fact that the EMC storage router doesn't sit in the datastream is key to scalability," Passe says.

Analysts say the choice of the EMC Invista or another virtualization approach depends on the applications a user wants to run.

"If you are looking for doing volume aggregation, IBM's SAN Volume Controller or DataCore's and Falconstor's products make sense," says Greg Schulz, an analyst with Evaluator Group. "If you are looking to address things such as data movement and migration and use an underlying array, then the EMC storage router is the right choice."

Invista is expected to be priced starting at about $140,000. ■

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Tools, services help test VoIP quality

■ BY PHIL HOCHMUTH

Integrated Research last week rolled out Prognosis IP Telephony Assessor software that can generate simulated VoIP traffic, measure call quality and point out potential network trouble spots.

The software could help users rolling out IP telephony avoid costly project delays and avoid angering end users by identifying problem areas that might affect call quality before installation.

Meanwhile, Empirix is offering a similar on-demand VoIP assessment testing service.

A recent report from Deloitte & Touche says that poor voice call quality and unexpected expenses from inadequate network infrastructure for VoIP are issues users might run into if pre-project network assessments are skipped.

"Employees are far less tolerant of a malfunctioning phone system than they are of IT breakdowns," writes Tony Kern, deputy managing partner at Deloitte & Touche.

The Prognosis IP Telephony Assessor joins Integrated Research's current suite of Prognosis tools. It runs on a server and generates simulated VoIP calls, measuring the packet traffic jitter and packet latency for the call streams. Data that is collected can be turned into reports that show potential problem areas.

For post-installation testing, the software also can be used to monitor call-quality levels on an ongoing basis. The system can be set up to alert users if call quality falls below an acceptable threshold. The software is certified to work with Cisco AVVID architecture VoIP products.

Users looking to rent these kinds of capabilities can choose Empirix's Hammer On-Call service. This provides access to Empirix's VoIP testing hardware — used by carrier-class telecom gear makers — on a per-use basis. The service can be used to test network equipment performance under heavy loads of VoIP traffic. It also can test the IP traffic, examining VoIP signaling/call setup streams and conversation streams and measuring the call quality based on a simulated mean opinion score data, a scale for measuring voice quality in the voice telecom equipment industry.

The Hammer On-Call service can generate simulated H.323, Media Gateway Control Protocol and Session Initiation Protocol VoIP protocol conversations as well as simulating hybrid IP/TDM network traffic. Reports also can be created that show graphical test call flow charts.

Products similar to the Empirix service and Integrated Research software include VoIP assessment tools from Agilient, ClearSight, Fluke Networks, NetIQ, Telchemy and WildPackets.

Pricing for the Prognosis software and Hammer On-Call service is provided on a per-customer basis. ■

3Com to integrate IPS with switches and routers

3Com later this year will integrate its intrusion-prevention gear with its network equipment in an effort to let customers quarantine attacks by shutting down switch ports and redirecting users to restricted virtual LANs.

The company's network switches will respond to commands from its TippingPoint Intrusion Prevention System (IPS) that sits in-line with traffic, inspecting packets to Layer 7 at wire speed and throttling or blocking suspicious traffic. The IPS will be packaged in blades that plug into 3Com switches and routers. 3Com bought TippingPoint last year.

With the new capabilities, the IPS can make switches close ports or shunt traffic to secure VLANs to quarantine devices and network segments where worms are found, says Kip McClanahan, a president at 3Com.

The capabilities also will include changing switch and router access lists to restrict activity of infected machines and block IP addresses. New software and hardware will roll out over the next nine months.

This is similar to what other network vendors are planning or doing. Alcatel and intrusion-detection vendors team up to use the company's Automated Quarantine Engine in Alcatel switches. Nortel's switches also support third-party IDSes. Cisco's Clean Access software imposes similar restrictions. Enterays's Automated Security Manager quarantines via its switches.

3Com still will sell its TippingPoint gear as a device that can plug into networks made up of other vendor's gear, McClanahan says. This puts it in competition with other overlay security vendors such as Check Point Software, Caymas Systems, Vernier Networks and Lockdown Networks.

McClanahan says 3Com is tuning its TippingPoint equipment to support managed services. So a service provider might install the devices in customer networks and handle customers' network security, he says.

The company also will announce new TippingPoint devices scale smaller than its current offerings to support networks with less traffic as well as faster devices for the largest backbone networks. The company also plans software upgrades to better secure VoIP.

— Tim Greene

Sun acquisitions fill out grid plans

■ BY JENNIFER MEARS

While struggling to reinvigorate its hardware business, Sun continues to focus on software and services as it aims to change the way companies buy and deploy IT.

The Sun Grid initiative, unveiled earlier this year and aimed at delivering technologies and services to users on a pay-as-you-go basis, is key to the effort. A pair of acquisitions the company announced last week should build out those offerings, and Sun executives say more purchases are on the horizon.

"We're just warming up," says John Loiacono, executive vice president of Sun's software group.

In the first deal, Sun announced that it would buy all of the intellectual property rights to Procom's network-attached storage (NAS) technology. Sun has had a licensing agreement with Procom for more than a year and ships Procom's technology in its Sun StorEdge 5000 family of NAS appliances. The $50 million deal will let Sun more quickly roll out NAS products, and company executives indicated the technology could find its way into the Sun Grid storage offerings.

The second deal, with thin client firm Tarantella, will beef up Sun's Sun Ray thin clients, which offer anytime, anywhere access to its desktop applications. With Tarantella, Sun will be able to hook into legacy applications, whether they're running on Windows, Unix or a mainframe.

The idea is to be able to display any application on any device, from a thin client to a mobile device, Loiacono says. Today, Sun partners with other companies to provide that kind of access, but customers must pay additional licensing fees. The plan is to integrate Tarantella's Secure Global Desktop technology into Solaris.

"The bigger picture [with these acquisitions] is that we're building a utility computing model ... and they provide more possible services that we're going to integrate into the big Sun Grid," Loiacono says. "The next service you could see from us is display services, meaning you can display your application from anything to anything."

Loiacono wouldn't say when such services would be available.

Sun needs to do more to turn itself around, analysts say.

"Adding incrementally to a service-delivery function doesn't create a strategic advantage," says Joshua Greenbaum, principal, Enterprise Applications Consulting. "They are incremental little pieces that Sun is adding to its portfolio. . . . Their stock is abysmally low and nothing they've done recently has helped improve that." ■

Eating it up

Sun hopes acquisitions will help turn the struggling company around. It announced back-to-back deals last week and executives say they're just getting started. A look at Sun's latest moves:

Company	Price	Closing date	Technology
Tarantella	$25 million, cash and stock	Announced May 10, expected to close in Sun's Q1 2006 (fall)	Thin client delivery services for server apps regardless of platform.
Procom	$50 million, cash	Announced May 9, expected to close in June	Network attached storage technology and engineering expertise.
SevenSpace	Undisclosed, cash	January 2005	Remote system monitoring and management for heterogeneous environments.
Kealia	Approximmately 20 million shares of Sun's common stock	April 2004	Advanced server design, focusing on AMD Opteron-based systems. Kealia chief and Sun co-founder Andy Bechtolseim returns.

Robots

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Cambridge, Mass. Now retired, "the father of robotics," spoke to an overflow crowd, exhorting the audience of young entrepreneurs to make his dream of an elder-care robot (which he first wrote about in 1989) a reality. "Please, let's do it," he said.

Today, you can count the number of successful consumer products on one robotic hand. There are the robot vacuum cleaners — Roomba is the most popular, with sales of 1.2 million units. And there's Robosapien, a $100 toy humanoid robot made by Hong Kong-based WowWee (not to be confused with Chinese networking vendor Huawei) that walks, dances, burps and moves its arms.

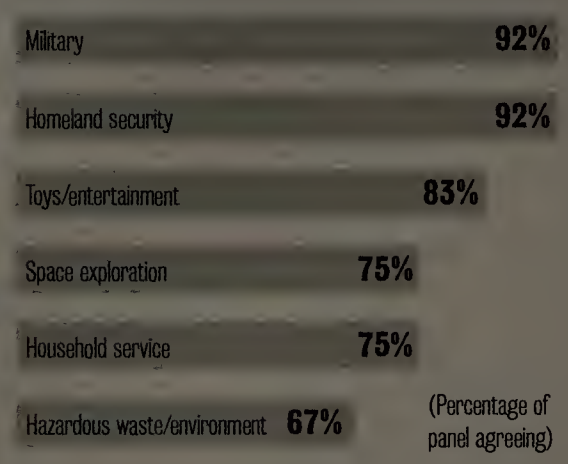
Engelberger seemed dismayed. He dismissed the toy robot out of hand. "I don't think walking has anything at all to do with robots. And it doesn't have to look like a human. It needs to have a purpose," he said.

He wasn't all that impressed with Roomba, a low, round appliance that can get under couches and attack dust bunnies. "You get one for your mother-in-law, sit around, have a few drinks, get some laughs and put it away in the closet," he said.

A look ahead

A panel of robotics experts predicts that 10 to 15 years from now there will be significant product sales in the following areas:

The Pyxis HelpMate is a robotic courier used in hospitals.



Bits vs. atoms

Engelberger and others at the show drew a sharp contrast between the explosive growth of the computer industry over the past few decades and the relative stagnation of the robotics field. While venture capitalists were lining up to fund computer start-ups, Engelberger, despite his impressive résumé, was unable to get financing for his robot that would help people live at home rather than go into a nursing home.

The robotics industry today is about as far along the road to widespread commercial acceptance as the PC industry was in the 1970s. The differences are that robotics don't have an equivalent of Moore's Law, the industry hasn't settled on standards, there's not much in the way of venture capital money and there's really no viable commercial application — killer or otherwise, said Paolo Pirjanian, chief scientist at Evolution Robotics.

On the show floor, several vendors displayed small demo robots that used sensors to navigate the show floor — literally technologies in search of an application. Unfortunately, the economics are such that it's extremely difficult to build a true robot that can interact with its environment at a cost that would attract consumers, Pirjanian said.

The vacuum cleaner is a good example. Electrolux tried to market a robotic vacuum cleaner called Trilobite that uses ultrasound to get around, but at $1,800 consumers weren't biting. The Roombas and e-Vacs are affordable — between $150 and $250 — but they lack the sophisticated capabilities that one would want in a robotic vacuum cleaner, such as obstacle avoidance, the ability to go up and down steps, and the ability to know where it had already vacuumed.

"Is there a robot in your future?" Pirjanian asked "Yes, but we need to redefine the stereotype of the robot that Hollywood has created for us." Robotic technology will be embedded in other products, he predicted, adding that we won't see stand-alone, multi-function robots anytime soon.

That's not to say there wasn't a serious buzz of excitement at the show. Helen Greiner, who co-founded iRobot 15 years ago when she was 23, is leading the charge for the next generation of robotics pioneers. Her company sells the Roomba and the PackBot, a ruggedized, 25-pound, tank-like robot that can fit in a soldier's backpack and can be tossed into a building, for example, where its video camera will search for the presence of enemy soldiers. Individual PackBots are being used in Afghanistan and Iraq to search inside caves and other dangerous places, and Greiner said the next step would be to use swarms of networked PackBots to search an area for enemy soldiers, mines and chemicals.

Richard Lepack, CEO of Frontline Robotics, said small, specialized robots could be used for physical security, to patrol the perimeter of a commercial airport or to keep tabs on what's happening inside a bank at night, for example.

Greg Doherty, director of product and market development at John Deere, said the farm equipment maker is interested in building unmanned vehicles that use GPS to run farm equipment along precise paths. The company also is working with iRobot to build an unmanned military vehicle that is expected to go into early production in 2006.

But Doherty pointed out that there are huge technological barriers to overcome. For example, in early trials of a robotic lawn mower, Deere found that the robot perceived tall grass as a brick wall. He said that technologies like real-time modeling of the environment, the ability to manipulate objects, the ability to avoid obstacles and voice recognition simply aren't there yet and won't be for decades.

Bottom line: If you're looking for R2-D2, check out the next Star Wars movie. ■

Vendors automate server management

■ BY DENISE DUBIE

A pair of vendors this week separately plan to announce products designed to help automate the oversight of constantly changing server networks.

Heroix is set to release its Longitude systems management package, while Opsware issues Version 5.1 of its Server Automation Systems (SAS) package.

"Management tools used to be built on the assumption that the systems and applications weren't going to change much," says Jasmine Noel, principal analyst at Ptak, Noel & Associates.

"Now changes are constant and management tools must automatically handle those changes in more advanced environments such as [Java 2 Platform Enterprise Edition], .Net" or services-oriented architectures, she says.

In unveiling Longitude, Heroix abandons its previous use of management agents and replaces it with automated performance monitoring across server platforms, operating systems and applications. The software is installed on a dedicated server and makes use of industry-standard APIs to collect data from managed machines.

Tony Castaldo, IT manager at Boston Sand and Gravel, says Longitude's status dashboard quickly tells him if any of the 20 or so servers scattered across New England need attention.

He installed the product a few months ago after ruling out Ipswitch's WhatsUp Gold because of a lengthier deployment time. He says with Longitude, he can better plan his workday around server health across distributed locations.

"We are short-staffed in the IT department, so I have the product set up to let me know ahead of time of upcoming problems," Castaldo says. "It's crucial for me to know quickly where I stand."

The product can be used to monitor more than 250 performance metrics and generate 125 reports on system health. IT managers set up role-based administration and log on to the Web-based interface from any location to check performance with a user ID and password.

The lack of agents could limit the amount of remote-control or remediation capabilities an IT manager would have over a machine, Noel says, but the software can provide access to performance statistics that would help resolve problems.

Longitude costs $300 to $600 per server, depending on the platforms and operating systems monitored. Site licenses for J2EE users cost about $3,000.

New from Opsware

Separately, Opsware is expected to debut a feature called ExpressAutomation in the latest version of SAS.

The feature lets IT managers auto-discover their server environment and automatically distribute agents to the machines to be managed. SAS 5.1 loads onto a dedicated server, which can be used to conduct configuration and maintenance on a one-to-many basis.

Also with this release, Opsware has included a Compliance Automation feature designed to help systems administrators keep servers and the software patches and applications running on them in line with pre-defined policies.

"Opsware can automatically apply policies written once about Oracle, for example, to all systems running Oracle," says Tim Howes, the vendor's CTO.

Set for availability in June, SAS 5.0 costs about $1,200 per managed server. ■

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Correction

■ The story "Unplug and play: Uniting mobile devices, PBXs" (May 9, page 30) should have paraphrased Ascendent Vice President of Marketing Walt Blomquist as saying there is $50 billion to $100 billion invested in installed PBXs in the world.

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Extortion

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reluctant to acknowledge the attacks or enlist the help of law enforcement, resulting in limited awareness of the problem and few prosecutions.

Extortion is "becoming more commonplace," says Ed Amoroso, chief information security officer at AT&T. "It's happening enough that it doesn't even raise an eyebrow anymore."

"In the past eight months we have seen an uptick with the most organized groups of attackers trying to extort money from users," says Rob Rigby, director of managed security services at MCI. "We try to do our best to get [customers] through it, but we leave it up to them to bring such attacks to the attention of law enforcement."

While MCI has been asked to help with prosecutions in other cybercrime cases, Rigby says he does not recall a service provider being subpoenaed in a distributed DoS extortion case.

"It's happening enough that it doesn't even raise an eyebrow anymore."

Ed Amoroso
Chief information security officer, AT&T

Quantifying the extortion problem is difficult because the FBI, ISPs and third-party research firms can't provide figures on the number of distributed DoS attacks that include demands for money.

The FBI aggressively works daily on cases involving distributed DoS attacks and extortion, says bureau spokesman Paul Bresson.

"Almost all of them have an international connection," he says. "There aren't many cases where people doing this are from the U.S, and many times it is a juvenile subject to the laws of another country."

Bresson says such cases have been prosecuted, although he was unable to cite any. The FBI continues to encourage companies to report this crime to law enforcement, he says, yet "we understand there's a reluctance to do so."

An indeterminable number of victims are choosing to meet the demands of extortionists rather than turn to law enforcement for fear of negative publicity. The law does not prohibit paying, says Kathleen Porter, an attorney at Robinson & Cole in Boston, who has extensive experience with e-commerce and Internet law.

"It's illegal to make the demand, but it's not illegal for companies to pay to make the attacks go away. It's analogous to ransom," Porter says. "It's something companies are doing because the cost of denial-of-service attacks are so expensive."

"The problem is if companies keep paying, the attacks will continue," she says.

Even those who don't pay and instead work with their service provider to mitigate an attack are leery about reporting the crime.

"It's still taboo for users to talk about these attacks," Rigby says. "Users worry that just coming under attack can damage their brand."

Companies are not required by law to report these crimes, Porter says, and she suspects a fear of being sued over the consequences an attack might pose to one's customers contributes to the reticence of many to do so.

"We've had [extortion attempts] happen to our customers," says Bruce Schneier, CTO at managed security services provider Counterpane Internet Security. "More often than I'd like, they're paying up." Counterpane offers anti-distributed DoS services, he adds, but they "aren't cheap."

Anti-distributed DoS services cost around $12,000 per month from carriers such as AT&T and MCI, says John Pescatore, Gartner security analyst. The most popular type of anti-distributed DoS equipment used by service providers is Cisco's Riverhead gear and Arbor Networks' detection tools. This equipment can filter about 99% of the attack traffic, he says, although sometimes network response times drop by a few seconds.

Gartner advises clients not to pay extortion demands, but some have nonetheless dropped hundreds of thousands of dollars into Swiss or Cayman Island bank accounts controlled by criminals, Pescatore says. "We tell them they're better off going to AT&T and MCI for anti-[distributed] DoS protection," he adds.

However, when a business needs multiple service providers for backup and bandwidth, the cost for obtaining anti-distributed DoS services from each can be seen as prohibitive. "So they think it's the same amount of money either way, the service provider or the extortionist," he says.

One company that refused to pay, Authorize.Net, also went public about its attack. Last fall, the Bellevue, Wash., payments-processing firm that authorizes credit-card transactions for more than 114,000 merchants, had its Internet-based service disrupted by extortionists demanding payment to cease a massive distributed DoS attack. Authorize.Net issued a statement apologizing for the intermittent disruption in its service and spoke out about the extortion demands.

"Today, we've not yet seen a successful apprehension of anyone involved," says Roy Banks, Authorize.Net president. "As a payment-processing platform service, we're prepared in dealing with these threats all the time. We see them regularly."

His company has seen "demands from $10,000 to several millions," Banks says. Authorize.Net's policy is not to pay. "We typically engage law enforcement immediately," he says.

As for protecting his company against future attacks?

"We've invested in [distributed] DoS equipment," says Banks, who declined to divulge exactly what that would be, saying he worries that might only help attackers. "It's a combination of hardware and software, both commercial and proprietary."

Vendors such as Mazu Networks, Captus Networks and Arbor have products focused on mitigating distributed DoS attacks.

Banks says an important aspect of distributed DoS defense is completing service-level agreements with Web hosting and bandwidth providers to create a "framework of cooperation."

There are a few ways these attacks get started. In some cases businesses receive a threatening e-mail or phone call stating if they do not meet certain demands they will be victimized by a distributed DoS attack. Most often, the distributed DoS attack begins and then the business is contacted. The perpetrator sometimes stops an attack after 10 minutes or so and then contacts the company saying if it doesn't wire money to a specific account the extortionist will resume the attack.

Experts say the demands can be $100,000 or more, but some criminals ask for smaller amounts.

AT&T's Amoroso says the extortionists "want to make it real easy for someone to pay. ... Think about it, if you're getting pounded and all you have to do is fork over $6,000 to this account and everything will be fine, it seems easy."

Countering the crime spree is likely to prove more difficult, and some say it will take an increased willingness on the part of victims to go to the authorities.

"There's been a certain laggardness in addressing this at a more formal level," Authorize.Net's Banks says. Speaking out might help raise awareness that vendors, online businesses and law enforcement need to work together more closely to catch the extortionists. "This involves countries outside the U.S., too, so we should really be dealing with it internationally." ■

Handling distributed DoS extortion

Before an attack

- Deploy distributed DoS mitigation tools.
- Subscribe to a managed distributed DoS mitigation service.
- Fashion a service-level agreement that specifies how service providers should react to an attack.
- Coordinate a standard response to attacks between business, IT and legal departments.

During an attack

- Contact your Web hosting provider and ISP.
- Launch mitigation efforts per plan.
- Contact law enforcement.

After an attack

- Have service provider give law enforcement a detailed account of the attack.
- Enact "before" tips if not already implemented.

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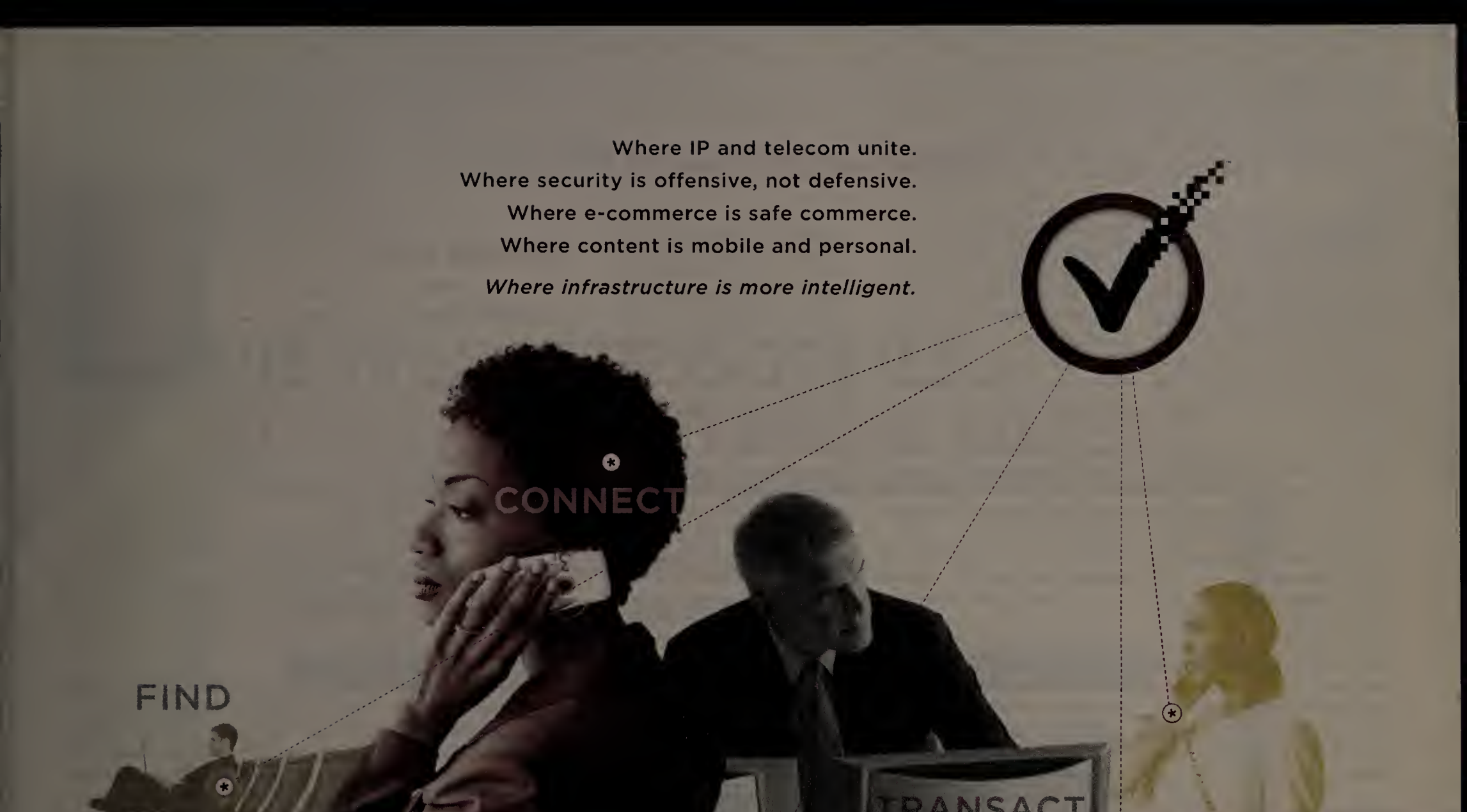

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Renovator Award Winner

Renovator profile

Name:	David Stever
Company/Title:	PPL, manager, communication technology services
Job responsibility:	All voice, data and other communications systems for domestic operations.
Size of team:	60
Job tenure:	21 years
Project duration:	30 months
Crowning project achievement:	$2 million in projected savings per year through convergence.
Interests outside of work:	Restoring classic automobiles, nature photography, performing classical music.

Renovator
continued from page 1

achieved in its five-year renovation plan and the compelling returns: The company has eliminated $1 million in costs and within two years expects further VoIP deployments to save another million per year.

Ranked 344 on the Fortune 500 with revenue of $5.8 billion, PPL is a multinational energy company based in Allentown, Pa., with 100 locations in Pennsylvania, Montana, Illinois and spots along the Eastern Seaboard.

David Stever, manager of communication technology services, says the company's network supports some 11,000 nodes, and the centralized information services department provides IT services, including network and telecom, for all domestic subsidiaries and locations.

Private rings

In the early 1990s, PPL linked 15 of its major Pennsylvania locations with a private SONET ring that the company built to monitor and control substations by stringing fiber along its power transmission towers.

"By the mid-90s, enough of the SONET was completed so we started to look at the ring as a way to eliminate carrier charges," Stever says. "In 1997 we put an OC-3 ATM backbone on top of it."

Switched Multimegabit Data Service (SMDS) from what was then Bell of Pennsylvania was used to connect the SONET backbone to 65 smaller locations, which included everything from power company garages and crew quarters to parts depots. "SMDS was extremely cost effective," Stever says.

Out-of-state locations were tied in using a mix of T-1s and fractional T-1s. When PPL acquired an operation in Montana in 1999, for example, three T-1s were run to the largest facility there and a frame cloud was used to pick up 12 surrounding locations.

Lessons learned in the integration of the Montana facilities would ultimately guide some of the thinking for the current network renovation, which began in 2003.

"When we bought plants in Montana and had to tie them to our backbone, convergence was very clearly the answer on the trunk side given the remoteness and relative lack of service providers," Stever says. "It was the only cost-effective solution. And to support that we had to come up with the beginnings of a QoS scheme."

The experience left the team convinced "the day for convergence would come and we better start preparing for when it would be appropriate for the rest of the network," he says.

As it turns out, they didn't have to wait long.

The SONET ring was getting long in the tooth, but what really started the ball rolling was Bell of Pennsylvania's announcement of doing away with SMDS in 2004.

"SMDS was cost effective and we went out with a [request for information] not knowing what to expect. Would a replacement cost more, or could we expect to get more for less?" Stever says.

It soon became apparent that PPL could use newer and less-complex technology to provide cost savings while maintaining or improving the level of service offered to users, Stever says. "Once we figured we could pay less, we saw we could hand some of the money back to the business but reinvest a good majority to prepare for convergence."

Stever found the SMDS replacement in his hip pocket. In 2000, PPL had created a carrier called PPL Telecom to offer services using some of the company's own fiber and still other facilities it built or bought. And the carrier now could reach the SMDS locations with an optical Ethernet service.

"So instead of having to put a router with a T-1 interface and a DSU/CSU at each remote location like we used to, they hand us off an Ethernet connection," he says.

Some locations got a full 10M bit/sec Ethernet pipe, while others got T-1 equivalents. At least one-third of the locations migrated from a single T-1 to 3M bit/sec connection. "All locations got more bandwidth, some marginally faster, most of them significantly faster," Stever says. At the other end, traffic is delivered to PPL's data centers via multiple 100M bit/sec pipes. The SMDS migration was completed last July.

All of it was built out with QoS-capable equipment. "When we planned out the SMDS and SONET networks we addressed QoS, we made sure we were ready for that phase when it would come," Stever says. That included replacing shared-media equipment with QoS-capable switches, and installing Power over Ethernet capabilities for locations where IP phones would be installed over the coming years.

The other half of the data network renovation is the SONET overhaul, which is still in progress. That project involves upgrading the aging equipment on the OC-48 ring to support optical Ethernet ports and adding two ring locations to bring the total to 17.

Why keep SONET at all? "We have a lot of legacy applications that still need some of the traditional telephony interfaces," Stever says. "And we haven't fully converted to IP PBX trunking, so we have a lot of trunking that happens across SONET."

Another benefit of keeping SONET vs. going directly to Ethernet over fiber is the built-in SONET protection. "If we have a fiber cut or equipment outage, instead of failing over at Layer 2 or 3 like the IP equipment would, SONET can recover in milliseconds, quick enough so we never even see it from a Layer 2-3 perspective," Stever says. "The protection is all transparent."

"PPL's phased approach to convergence is in line with industry best practices," Renovator Award judge Johnson says. "It's important to start by assessing the infrastructure, determining key requirements and providing appropriate QoS. By taking a holistic approach to next-generation architecture, PPL has been able to align its infrastructure with its business priorities."

PPL expects to have its new Nortel Optera 3500 SONET gear in place by June and cut over by year-end, replacing the current Lucent-based infrastructure. Besides the traditional telephony interfaces, the 3500s support 10M, 100M or Gigabit Ethernet interfaces. "For the most part we'll use 100M bit/sec ports," Stever says.

Convergence: Org first

Stever says the transformation of the data network will ultimately improve availability and performance, while reducing overall costs by 10% to 15%. Even more substantial returns are coming from convergence, which PPL is addressing in both organizational and technologic terms.

Working with VoIP in Montana showed the technology was ready, "but it also showed that if we tried to implement it on a large scale with separate voice and data organizations it was pretty much doomed to failure," Stever says.

So he combined the voice, data, operations, development and radio groups into Communication Technology Services, then carved that up into three groups: operations, network infrastructure design and communications services design. Total head count for the three groups is 60.

Network infrastructure deals with the physical network design, the SONET system, IP connectivity, optical systems and circuit procurement and management. Communications services handles messaging and collaboration, e-mail, voice mail and unified messaging, as well as data service issues such as address management, Active Directory, videoconferencing and network security. The operations group runs it all.

"It worked out really, really well," says Stever, who has been invited to talk about the experience at conferences.

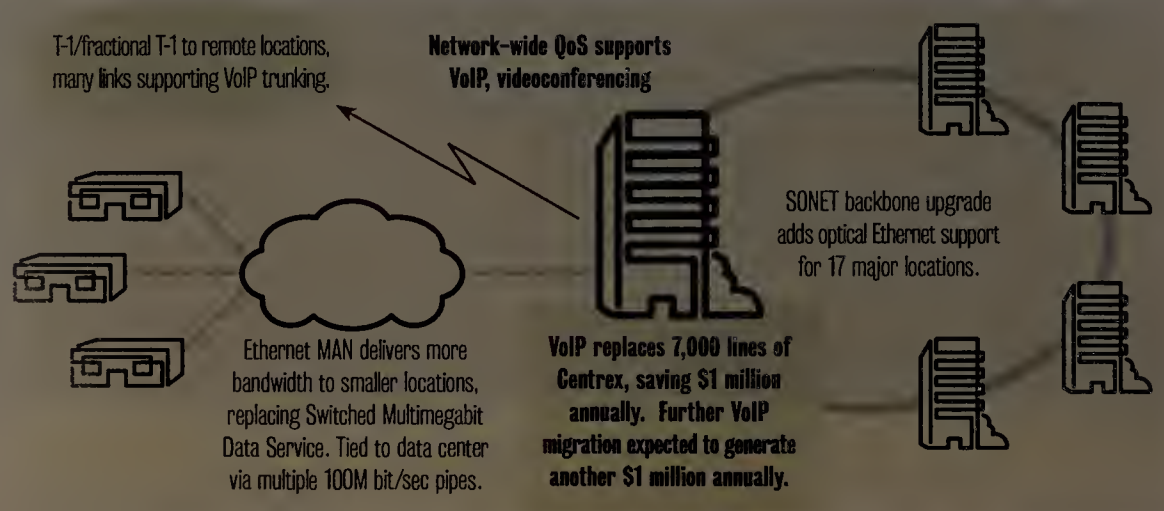
With the QoS architecture laid out and the data network overhaul under way, PPL started piloting VoIP in earnest in 2003.

The company installed a Nortel Meridian 81c IP-enabled PBX in headquarters, which had enough capacity for the facility's 5,000 lines but initially only supported

See Renovator, page 52

Energizing the network

PPL, a Fortune 500 energy firm, turns to optical Ethernet, VoIP in sweeping overhaul.



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Renovator Award Finalists

Net overhaul alters engineers work

■ BY DENISE DUBIE

Psomas earned a top spot in the Network World Renovator Award contest for a network overhaul that involved migrating from frame relay to Multi-protocol Label Switching and implementing a wide-area file distribution service that changed the way company engineers work.

Erik Durand, corporate network manager at the civil engineering firm in Costa Mesa, Calif., says he began the WAN overhaul to accommodate the company's growth and demanding design tools. Plans called for tying six more remote locations to Psomas' eight current facilities in the coming year, and longer-range projections forecast head count almost doubling to 1,000 by 2010.

Durand started working with Sprint in August 2004 to swap his frame relay network for a fully meshed MPLS network. While the upgrade wouldn't increase network speed, it would allow for fewer hops between locations and reduce latency by an average of 2 millisec to 3 millisec on each hop.

"The MPLS network enabled us to 'shotgun' our dual T-1s linking West Los Angeles, Costa Mesa and Roseville," Durand says. "So instead of separate 1.5M bit/sec connections we have a single 3M bit/sec [pipe between those locations and 1.5M bit/sec] links to other locations."

Erik Durand's company Psomas is saving $170,000 annually by using an MPLS WAN.

When the MPLS WAN was cut over last November, it enabled Durand to turn his attention to finding a way for engineers at various offices to share CAD files that range in size from 300M to 500M bytes.

"Work-sharing between offices had been occurring for some time but it was not a popular option because it was cumbersome," Durand says. "In order for two or more offices to share work on a project, files had to be replicated to each location's file server. The consequence was that an engineer in one office was only able to work with data from a remote location from the day before. It was costing the company money in duplicate efforts and lost billable hours."

Durand decided to use wide-area file service (WAFS) appliances. He evaluated devices from several vendors and settled on Riverbed's Steelhead equipment. To speed traffic between clients and servers and deliver LAN-like response times he installed the devices at all branch offices.

The Steelhead appliances understand Microsoft's Common Internet File System and the Unix Network File System, and can predict the response a server or a client needs, such as an acknowledgement. They also can produce the response locally rather than getting it from across the WAN.

The devices cache traffic and recognize repeatable patterns, which means the next time a pattern appears the appliances can serve up the traffic at the remote end from cache rather than transfer it across the WAN. The boxes optimize TCP sessions to make transfers more efficient.

The system works so well that when the time came to open a new Denver office, Durand realized he could do it without installing local gear. "With a T-1 into the MPLS WAN and a Steelhead appliance, IT was able to open the office without the additional expense of a file server, a digital linear tape back-up system or on-site IT staff."

While the MPLS WAN is saving Psomas $170,000 annually, Durand estimates the adoption of the WAFS technology is saving the company an estimated $1 million annually.

Durand says the IT team now hopes to leverage the WAN architecture to converge voice and video. Psomas has Polycom videoconferencing units in each branch office that are linked via dedicated ISDN lines. In the next year, he wants to move video to the MPLS WAN, providing further cost savings. Psomas also plans to migrate two locations to VoIP this year, using ShoreTel VoIP equipment. ■

School district saves with VoIP, open source

■ BY PHIL HOCHMUTH

The Saugus Union School District reached the Network World Renovator Award finals for a wide-ranging network overhaul that involved laying a foundation of 100/1000M bit/sec Ethernet, installing IP-based telephony, delivering on-demand video and migrating 50 servers from Novell NetWare to Red Hat Linux.

Saugus Union's network revamp project started with the school's network team creeping around in wiring closets and wiring ducts in the 16 elementary, middle and high schools, and ripping out old network gear.

"We had some ancient stuff," says Jim Klein, director of information services and technology for the school district in California.

Klein's goal, when the project began two years ago, was a converged voice, video and data network that could be centrally managed and monitored.

The first step was taking out 10-year-old Bay Network 10Base-T hubs and various 10Base-2 coaxial cable links that tied together some school buildings. The 128K bit/sec ISDN-based WAN also had to go, he says.

Jim Klein and the network team at the Saugus Union School District replaced 'ancient stuff' with a centralized, multi-service network.

Klein built the foundation of the school's new multi-service network on Fast and Gigabit Ethernet switches from 3Com: Switch 4900s in the core of each building fanning out to SuperStack 3 switches in wiring closets. Whereas network problems used to require trips to the trouble sites, the 3Com gear let Klein manage the network from his office.

The school also upgraded its WAN with point-to-point T-1 lines anchored by Cisco routers.

With the foundation in place, Klein could next tackle delivering VoIP. In the past, the school only had phones in certain administrative offices, he says. The network renovation plan called for putting a 3Com IP phone in each room and tying together all schools with free IP calling over the WAN.

But the project got tricky because telephony traffic had to run through firewalls using network address translation (NAT). The 3Com phones use Layer 2 media access control addresses to route calls over the LAN; IP addresses are picked up from a DHCP server on the 3Com NBX servers when routed over an IP WAN. When they hit the NAT wall, calls dropped because the IP addresses of the phones were changed, Klein says.

To get around the problem, Klein configured his 3Com switches to route the calls over the point-to-point T-1 links, bypassing the firewalls.

The VoIP network also eliminated dozens of disparate telephone key systems and several Centrex lines. Now calls within the district are free, and Klein estimates this saves hundreds of dollars a month in toll charges alone.

But the biggest payoff stemmed from the school district's migration from NetWare servers to Linux.

"We were able to cut our server maintenance costs by $50,000 per year," Klein says. He now pays $50 per server, per year for software updates, patches and support, vs. $1,000 per server, per year with Novell.

Converting the school's applications from NetWare to Linux was uncomplicated because the major software vendors were migrating to Linux, he says. The fact that Novell now supports Linux also made it easier, which let the district keep its Novell GroupWise e-mail system.

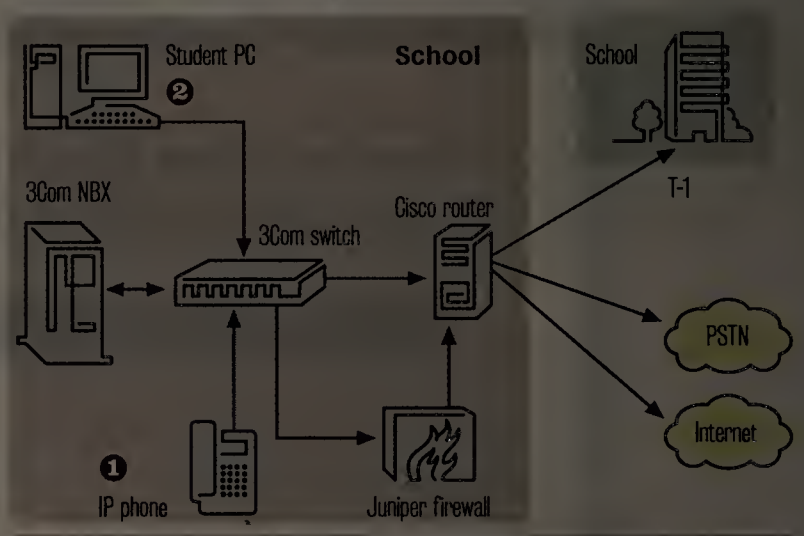
Having a background in Novell's NetWare Directory Services also helped the school migrate toward Open Lightweight Application Directory Protocol, which now is used to provide single sign-on accounts and passwords for all users.

As for the new video support, Klein decided it wasn't practical to drive it over the same Ethernet infrastructure, so the school opted to use coaxial cable.

Digitized content is stored on servers in the school's data center and delivered to TVs in classrooms. This means teachers can order digitized content to be delivered to individual classrooms or groups of classrooms via IP-based set-top boxes that attach to TVs and the IP network. ■

Classes of service

The Saugus Union School District uses 3Com IP NBXs and Cisco routers to tie together voice and data.



❶ Voice traffic is routed over the point-to-point T-1 network, and not through the firewall, because of NAT transversal issues with VoIP.

❷ Student Internet browsing is sent through the firewall, where content is inspected and Web site restrictions are applied.

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IBM buys open source middleware player

Acquiring Gluecode Software broadens Big Blue's service offerings that may appeal to smaller firms.

■ BY ANN BEDNARZ

IBM's acquisition of open source developer Gluecode Software adds depth to its infrastructure software lineup while providing an open source services delivery model. Analysts say this will strengthen Big Blue's competitive edge.

IBM last week announced that it acquired Gluecode, a 2-year-old, privately held company based in El Segundo, Calif., for an undisclosed sum. It's likely among the smallest of IBM's transactions from a monetary standpoint, but it might turn out to be its most significant since the 1995 purchase of Lotus Software, says Nathaniel Palmer, a chief analyst at research firm Delphi Group.

Gluecode's Java application development platform — called Joe — combines open source components from the Apache Software Foundation's portfolio, including the Pluto portal framework, Geronimo application server, Derby database and Agila business process management engine.

IBM has taken heat over pricing of its WebSphere Java 2 Platform Enterprise application server platform, when compared to products from competitors such as Sun, BEA Systems and Oracle. With the Gluecode stack in its lineup — including the freely available Gluecode Standard Edition — IBM will be more attractive to small and midsize businesses, Palmer says. However, and even more importantly, the Gluecode deal will provide the WebSphere group with ready-made access to a services-based revenue structure, he says.

Gluecode, with 18 employees, built its business model around selling subscription-based support services for open source products, ranging from software assembly and delivery to code testing and source-code management. It's a new approach for IBM and WebSphere — one that will let customers start small, download the code for free, and add services as their requirements grow, says Robert LeBlanc, general manager of application and integration middleware at IBM. It's about "trying to address a part of the market that needs a different set of attributes and a different way to acquire products and get value," LeBlanc says.

This is where business software delivery is headed, Palmer says. "If it's not exactly this, it will be something like this — a lot of open source and a convenient delivery mechanism."

Putting this managed delivery model under the control of the WebSphere group, not IBM's Global Services division, is a significant move, Palmer says. "If you approach software as a service from a traditional outsourcing services model, it gets killed almost immediately because you're not making money initially," he says. "Putting it under WebSphere gives IBM some runway to ramp this model up."

Research firm Ovum hailed the deal as a milestone in the industry's move toward commoditized application server software. "IBM sends a clear message to competitors like BEA that it's keen to see the application server market consolidate and to get the players competing on the basis of higher-level services," Ovum wrote in a research note.

IBM says it will continue developing Gluecode's technology and increase its contributions to the Apache Geronimo open source application server software project.

IDG News Service correspondent Stacy Cowley contributed to this story.

Acquiring mind-set

IBM has kept up a steady acquisition pace this year.

Date	Company	What IBM gains	Price
May 10	Gluecode Software	Open source infrastructure software and support services.	Undisclosed
April 26	Healthlink	Healthcare consulting services expertise.	Undisclosed
March 14	Ascential Software	Data integration software.	$1.1 billion
Feb. 2	Equitant	Order management outsourcing services expertise.	Undisclosed
Jan. 25	Corio	Business software ASP.	$182 million
Jan. 7	SRD	Identity resolution software.	Undisclosed

Novell snaps up Linux security company

■ BY ROBERT MCMILLAN

Novell last week said it has acquired Immunix, a 7-year-old company founded in part with money from the Department of Defense's central R&D organization to develop security software for Linux.

Terms of the deal were not disclosed.

Immunix, a Portland, Ore., company with 15 employees, is best known for developing much of the Linux Security Modules (LSM) software used in the Linux 2.6 kernel, a key component of the Linux operating system.

By acquiring the company, Novell hopes to strengthen its security product offerings, says Charlie Ungashick, a director of product marketing at Novell.

Immunix sells software, called AppArmor, which can be used to secure Linux-based applications by limiting how they can interact with hardware within the computer.

AppArmor already is designed to work with Novell's YAST (Yet Another Setup Tool) management software, which makes it a natural acquisition target, Ungashick says. Novell expects to begin selling AppArmor, which will be re-branded Novell AppArmor, within the week, he says.

McMillan is a correspondent with the IDG News Service.

Roving Planet upgrades WLAN management suite

■ BY JOHN COX

Roving Planet has rebuilt its wireless LAN authentication software to let customers more easily manage WLANs at multiple sites.

Commander Suite 3.0 software is designed to secure and control any third-party access point via SNMP. A graphical Web interface lets administrators view access points and user data drawn from numerous sites.

The company also has released two new applications created for the suite. One, AP Manager, sets access point configurations and updates them. The other, Scan and Block, scans wireless devices as they start to connect to the WLAN, checks for such things as updated anti-virus software or active VPN clients, and only then lets the device access the network.

An API lets third-party applications pass information to the Roving Planet software. Company officials say they'll license two such applications, one for intrusion detection, another for dynamic radio frequency management, use the API to link them, and release them later in the year as additional options in the Commander Suite. They declined to say which vendors were being considered.

The previous Roving Planet product had two components: An agent, including a firewall, to monitor access points; and a management application to process the data, display it via a Web interface, and to set authentication and security policies.

The agent is preserved as the renamed Edge Defender, which now oversees about 100 access points. Its higher-level companion program now is called Network Commander, which works with several Edge Defenders to cover a midsize to large WLAN site. Network Commander has been rewritten in part to work with a new program, called Global Commander, which is designed to create a single view of large-scale, or multisite, enterprise WLANs..

Also new is Site Commander, which is designed for remote, or branch office, WLANs, of anywhere from 10 to 100 access points, and about 100 to 200 users. This program blends functions from both Edge Defender and Network Commander, and can use a WAN link to communicate with the Global Commander.

The new Scan and Block application downloads to a WLAN client device a temporary executable, about 64K bytes of code, as the client starts to connect to the WLAN. This agent collects data about various programs on the device, such as the current version of the operating system, of anti-virus software, whether or not the VPN client is active. This information goes to one of the Commander programs, which checks it against the user policies. The Commander can then grant or deny access, or redirect the client to a quarantine Web site.

AP Manager lets administrators working with one of the Commanders review, monitor, and change configurations on the access points.

Commander Suite 3.0 is available now. Pricing varies based on the number of access points, number of administrators using the software, and the number of users who are being managed by a policy created in the software ("managed connections"). That translates into a range from less than $30,000 for 100 access points, to $750,000 for 10,000 access points, according to the vendor. ■

Slow Systems?

BREAKTHROUGH TECHNOLOGY KEEPS THEM RUNNING AT TOP SPEED

One of the most common questions that comes up when talking about Diskeeper® is "Why pay for a defragmenter when Windows has one for free?"

To answer this question, let's compare defragmentation to housecleaning. Everyone's house gets dirty, and there are basically three ways to handle it:

1. Do nothing. The house gets dirtier and dirtier, stuff starts to pile up, the smell gets worse and neighbors start calling the health department. Eventually the house gets so dirty that it's uninhabitable, so you move out and find another place to live. (This scenario is similar to never defragmenting.)

2. Clean it yourself. This usually requires carving at least an hour or so per day out of your free time. (This scenario is like defragmenting your systems with a manual defragmenter.)

3. Hire a housecleaning service to come in and clean on a regular basis. (Automatic defragmentation.)

Do it yourself?

#2 seems like a reasonable solution. After all, plenty of people clean their own houses, right? In theory, yes. In reality, things come up—weekend plans, long work hours, etc. You might only have a few minutes to straighten up, or you might skip a couple of day's worth of cleaning altogether. End result: the house is rarely as clean as it could be, and when you do clean, it takes much longer than it should. Likewise, the process of manual defragmentation takes so long and involves so much IT staff time that it rarely gets done.

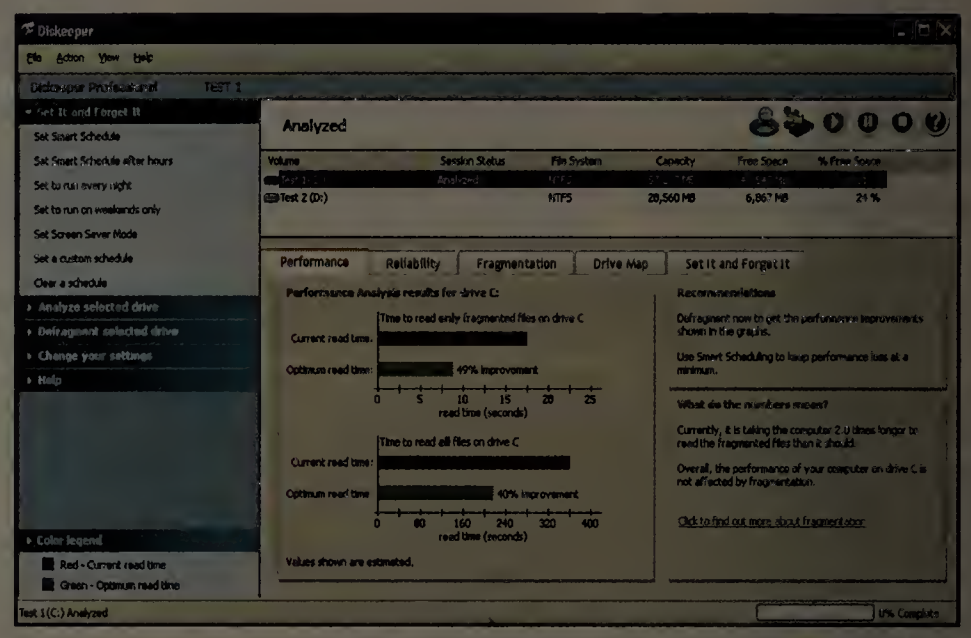
The most effective way to keep your house clean is to have it done automatically, on a regular basis. And the most effective way to keep your systems running at top speed with maximum reliability is to have them defragmented automatically.

Find the right solution

Let's say you hire a cleaning service to come to your house once a week and scrub the daylights out of it. They vacuum carpets, clean windows, polish furniture, organize the attic, etc., etc. It takes them all day and well into the evening. And while you like having a clean house, it's annoying to have to wait to eat dinner because someone is polishing the chrome on your oven door. Or to have to park on the street because someone was midway through straightening up the garage just as you got home from work. The same is true of defragmentation. A defragmentation run that kicks off at the wrong time can turn into a major headache and seriously disrupt your organization's workflow.

Automation with convenience

The perfect cleaning service is one that works around you. You can tell them when you want them to clean, or they can decide how often to clean based on how quickly your house gets dirty. They take care of the big stuff first—counters, floors, bathroom—so that you have a clean house as quickly as possible. Minor chores, like polishing the chrome in the kitchen or cleaning the garage, are done at times when they won't inconvenience you. And if they do happen to be cleaning a room you need to use, they get out of your way immediately.



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InSite: Lessons from Leading Users

DWDM is the right RX for New York Presbyterian Hospital

■ BY TIM GREENE

New York Presbyterian Hospital has dumped its WAN service provider and lit up leased dark fiber with dense wavelength division multiplexing gear that saves money and enables the hospital to grow its network as it adds more high-bandwidth applications.

Leasing fiber from a New York-area network consortium for research and educational organizations, rather than buying network services from Verizon, provides more bandwidth and saves the hospital $151,000 per year, according to Leo Bodden, director of the hospital's network group. Adding more and faster lasers with its new optical gear give it nearly unlimited bandwidth for future needs.

With two strands of fiber, the hospital uses 21 wavelengths to provide connections ranging from 10G Ethernet to Fibre Channel on a core network stretching 41 miles around New York City. The network can support up to 32 separate 10G bit/sec wavelengths — enough bandwidth for a long time, Bodden says.

The addition of high-bandwidth traffic, including medical imaging, a mirrored data center and storage-area networking (SAN), have pushed the limits of New York Presbyterian's network since 1999.

At that time, the hospital had filled up its OC-3 ATM network on three campuses in New York City, so it considered buying an OC-12 SONET network from Verizon.

But before the contract could be awarded, the hospital realized the OC-12 network would be overloaded by the time it was built, so it revised its plans upward to an OC-48 network.

That network never went to bid either because the hospital instead built its own DWDM network, built on Adva FSP 3000 optical switches.

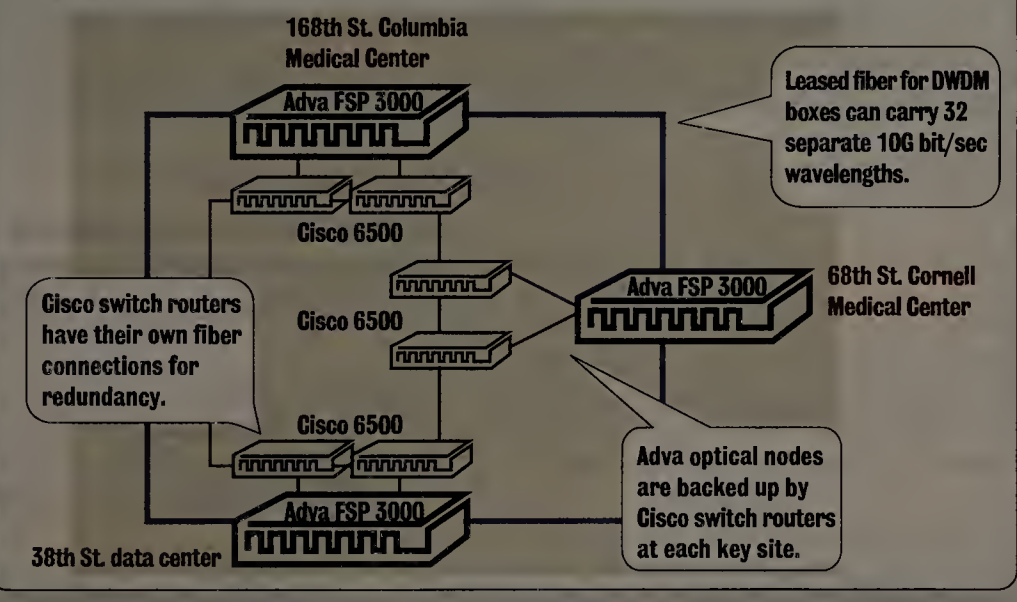
It then took the hospital three years to put out its bids for OC-48 SONET replacement in 2002. The hospital was planning a high-bandwidth medical imaging service called Picture Archiving and Communication System and creating a mirrored data center at 168th Street, so it needed room.

By that time, the network consortium — New York State Education and Research Network (NYSERNET) — proposed leasing dark fiber in New York City and re-leasing it at relatively low cost

See DWDM, page 20

Fiber solves hospital bandwidth crunch

New York Presbyterian Hospital lit up fiber on three campuses using DWDM to give it plenty of room for new high-bandwidth applications.



Ethernet tweaks make protocol fit for factory nets

■ BY PHIL HOCHMUTH

Several efforts in Ethernet development and add-on technologies to the standard are making it possible for lower-cost Ethernet gear to be deployed in factory networks, where LAN gear controls the precise movements and actions of machine tools, and a dropped packet or network delay can be costly.

One emerging standard is IEEE 1588, which lets networked Ethernet gear synchronize internal clocks according to a network master clock. Another multi-vendor technology effort, called Ethernet Powerlink, uses a standard Layer 2 Ethernet protocol along with a time stamp that operates similarly to TDM technology, where data flows are allotted specific, microsecond time slots for transmission. This type of technology eliminates packet collisions, which can cause data to be resent on shared Ethernet LANs; it also solves network latency involved with packet buffering in switched Ethernet.

Manufacturers are looking at control protocols that run on Ethernet networks to cut costs and bring the management of factory processes into the domain of an overall enterprise IP network.

"If everything has an IP address, then you know the status of any piece of machinery or a system" across a manufacturing enterprise, says Bob Parker, an analyst with IDC, who tracks IT trends in manufacturing. "Looking at standard, off-the-shelf devices makes sense," for deploying in factory networks. "It's like owning a boat; anything you buy for the boat that has 'marine' in front of the name costs twice as much. It's the same with industrial [IT products]. Buying something 'industrial' will cost twice as much."

Although Ethernet latencies are measured in fractions of a second, they are

See Ethernet, page 20

Short Takes

■ **IBM** last week released its first server designed to let firms integrate their user identities and access control platforms with partners outside their companies. **Tivoli Federated Identity Manager** is standards-based software that supports identity federation, a technology that promises to make it easier to manage identities as a means to secure data sharing between companies. The software lets users authenticate their corporate networks and use that sign-on to gain access to services on a partner's network. It supports a number of standards and emerging standards, including Security Assertion Markup Language; Liberty Alliance; and WS-Federation,-Trust and -Security. IBM joins companies offering federation servers, including HP, RSA Security, Sun, Oracle, Ping Identity and Trustgenix. TFIM is priced per user and starts at $69. IBM plans to offer per-processor pricing.

■ **Symantec** last week announced **Mobile Security 4.0** for Symbian, the fourth version of its anti-virus/firewall for Nokia 9300 and 9500 smart phones and the Panasonic Series 60 smart phone. The software, which costs about $50 per device, provides anti-virus protection that can be updated via Symantec's LiveUpdate service.

Check Point updates mgmt., security software

■ BY TIM GREENE

Check Point is wheeling out a big software upgrade across its product lines that increases security and makes it easier for users to manage its platforms day-to-day.

The upgrade, called NGX, runs on a dozen Check Point platforms, including its firewalls, IPSec VPN, management software, application security, SSL VPN, internal security gateways and event-correlation software. The goal is to provide a unified security architecture that businesses can add to their networks without whole upgrades to network gear, Check Point says.

Management improvements are the most significant features that set it apart, says Paul Stamp, an analyst with Forrester Research. "This allows you to update software across different components and analyze events more effectively and cohesively," he says. Check Point competes against 3Com, Cisco, Juniper and Nortel to sell security gear that addresses perimeter and internal security.

NGX software — which is part of a dozen Check Point products that run on servers, clients or appliances — pulls together management of Check Point's VPN-1, Connectra SSL VPN and Intraspect internal security gateway. This makes it possible to distribute updates once, rather than platform by platform. Administrators also can get a unified view of logs from all three platforms.

But NGX doesn't let you change policies from one console. That still requires three separate management applications.

The software includes SmartPortal, a new, read-only Web view of Check Point platforms to give broader access to security policies that have been set without compromising them to changes.

The feature could aid help desk workers who deal with complaints that a certain application is inaccessible. The worker could check policies via a SmartPortal to determine whether policies deny a user access to the application. If so, the caller can be passed on to an administrator with authority to alter the policy. If not, the help desk can continue troubleshooting.

NGX supports dynamic routing, which makes it possible to route traffic through current IPSec tunnels. So if a tunnel fails, routers can find alternative tunnels over which to direct traffic. Previously, Check Point software used static routes that had to be changed manually on each device.

For instance, the Department of Public Safety and Correctional Services in Maryland uses NGX to connect 430 law-enforcement sites via an IPSec VPN. Dynamic routing makes it easier to set up new sites and change policies for current sites, says Victor Fooks, chief network officer in the division of IT and communication for the Maryland Department of Public Safety and Correction Services.

Rather than reconfigure each VPN-1 Edge appliance to accommodate a new site, he changes the central firewall settings and policies in the network routers. Dynamic routing lets routing protocols, such as Border Gateway Protocol and Open Shortest Path First, decide which tunnels are best to route traffic to its destination.

Fooks says he is testing NGX's support for securing VoIP as groundwork for his department adopting it. NGX makes it easier for IP voice traffic to survive network address translation (NAT) as it crosses Check Point firewalls. NAT masks the IP addresses of private networks, which make it difficult for incoming phone calls to find the end devices they are looking for.

Check Point says NGX is set to be available May 30. It comes as an upgrade in customer-support contracts, and ships with new platforms. ■

Site: Lessons from Leading Users

DWDM,

continued from page 19

to members. The hospital had tried to lease dark fiber but couldn't afford it.

The hospital bought in to the NYSERNET proposal and pays NYSERNET $542,000 per year for the fiber, Bodden says. That's down from the $693,000 it paid Verizon last year for its OC-3 network that had been supplemented with DS-3s until the new network came online earlier this year.

The Adva DWDM gear cost $1.5 million to buy, as opposed to the other bid the hospital got — $4 million for Cisco 15454 optical gear. Besides the price, the hospital preferred the Adva equipment because if one node fails, it passes traffic through as if it weren't there, and the other nodes still can receive traffic. But Cisco's gear terminated all traffic at every node, not letting traffic through, Bodden says.

This was a key consideration because 38th Street has only battery backup, and a power outage could run down the battery and bring down the node, he says.

He also says he liked the simplicity of the Adva FSP 3000 gear. The Adva lasers are set to be slightly overpowered to work without adjustment even under slightly changing conditions. The Cisco gear tunes itself on an ongoing basis to adapt to changes.

So far the hospital has lit up 21 wavelengths on the network, two at 10G bit/sec, others at 1G carrying 10G Ethernet and Fibre Channel. Bandwidth can be boosted by increasing laser speed or adding more lasers, Bodden says. ■

Ethernet

continued from page 19

unacceptable to precision industrial processes, where machines can receive hundreds of control instructions in seconds. Missing one command could be disastrous, says Markus Sandhoefner, a marketer with B&R Industrial Automation, which makes an Ethernet Powerlink software stack for standard network gear.

"Ethernet is a great, low-cost technology," Sandhoefner says, "but it's not the most deterministic. If you have two real-time messages waiting in an [Ethernet] switch queue, you'll be in trouble if you're running applications such as motion control."

B&R is part of the Ethernet Powerlink Standards Group, which includes 165 vendors of automation and control products. The group's aim is to migrate legacy protocols such as ModBus used in factory floors to Ethernet-based technology.

Eagle Manufacturing of Shelby Township, Mich., recently deployed Ethernet Powerlink gear from B&R to control its line of machine tool equipment used to manufacture automobile components — specifically, car window frames and seals.

Machines on this line can change components on the fly to process materials for several vehicle types, says Brent Short, president of the company. This process lets the small component maker create a range of products without stopping production to refit equipment.

Time-sensitive applications, such as VoIP or video, can falter when packet delivery rises above 100 millisec of delay. With Eagle's machines cutting materials at precisely eight thousandths of a second and running at 50 feet per second, the delay of control messages sent to the equipment must be about 800 microsec (800 thousandths of a millisec, or 800 millionths of a second). The Ethernet Powerlink network provides preciseness.

Another factor in plant networks is time synchronization of network- and computer-controlled machinery. Like Ethernet Powerlink, IEEE 1588 uses time-stamping protocols to ensure that clocks are synchronized.

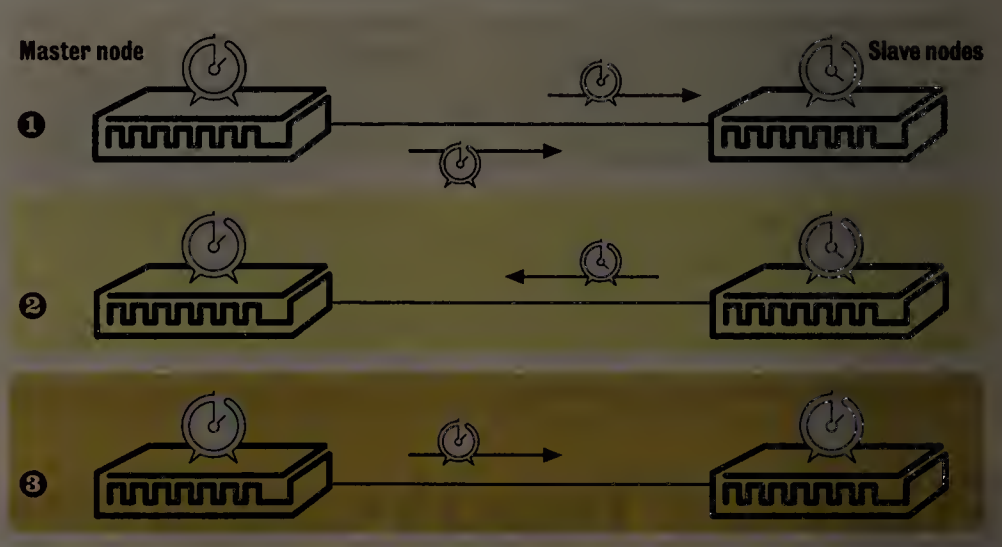
One vendor driving IEEE 1588 is Intel, which makes network processors with integrated time-stamping technology into Ethernet controllers and switch silicon. The use of IEEE 1588 in standards-based network gear in factories will help manufactures cut costs by eliminating expensive, custom-made or proprietary industrial automation communication technologies, says Puneet Sharma, technical marketing engineer for Intel's Digital Enterprise Group. But to gain the reliability of the network technologies that Ethernet may replace, something extra must be added.

"Time-synchronization protocols, such as Network Time Protocol, are not reliable enough and do not provide sufficient resolution to be useful for industrial automation applications," Sharma writes in an IEEE 1588 application report.

That means IEEE 1588 defined technology would need to run in network gear along with standard 802.3 Ethernet and a TCP/IP stack. This combination would let a Layer 2/3 Ethernet LAN act as a precision-control network, where factory floor machines can be controlled. Ethernet Powerlink Version 3 is set to be released later this year. ■

Switching time

With IEEE 1588 technology, a master switch keeps exact time for other devices on the network. Ethernet switches that can keep precisely synchronized time can be deployed in low-cost industrial automation networks.



1. A master switch node with IEEE 1588 capabilities sends a synchronization request to slave switches. The synchronization message includes a time stamp of the master clock. A follow-up message is sent to the slaves with different time stamps.
2. The slave uses the two messages to determine how far off its clock is running. It then sends back a "delay request" message to the master.
3. The master returns a "delay response" message to the slave with another master time stamp. This lets the slave calculate the time delay of the network, because of latency or other factors, and reset its clock to synchronize with the master.

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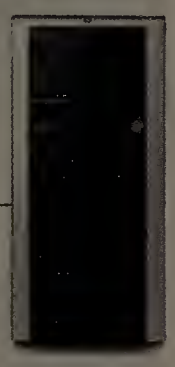

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Enterprise Computing

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Start-up tackles server management

■ BY JENNIFER MEARS

Taking its cue from the telecom industry, where uptime and reliability are critical, a start-up says it has the answer for network managers dealing with the costs and headaches associated with managing servers.

After almost three years in stealth mode doing research and development, Symbium officially launched late last month with the introduction of its Intelligent Secure Autonomic Controller (ISAC). ISAC is a computer on a card that fits into a server's PCI or PCI-X slot to provide automated, policy-based management for hardware, operating systems and applications.

Because ISAC is independent of hardware, the overhead is about 1% to 2%, compared with as much as 20% with software agents, and it can operate regardless of the state of the server, says Jay Litkey, Symbium's founder and vice president of technology.

ISAC performs a variety of tasks, including real-time fault recovery, root-cause analyses, unauthorized software/task blocking and scheduled automation of preventive maintenance routines.

"Today, the approach is people pile loads of software on a computer to try to manage it," Litkey says. "That's not the way to go. The more software you put on a computer, the more problems you could have."

Litkey says the idea for ISAC stems from his experience at Bell Northern and Nortel, where he worked on control-plane systems for the telecom industry. Control planes are separate computer systems that fit into network switches to monitor, manage and correct problems.

The telecom industry understood the importance of having a physical separation between devices being managed and management tools. "We saw that this concept didn't exist in the IT world," Litkey says.

Litkey compares ISAC with a flight data recorder and an autopilot for servers, recording trouble-causing information and preventing crashes whenever possible.

When a problem occurs, ISAC sends an e-mail alert to system administrators and takes system snapshots to ensure that the root cause of the problem is recorded.

IT services firm Nerds On Site has been testing ISAC for a few months. James Keenleyside-Richter, data center manager at the company in London, Ontario, says that maintenance time has been slashed by about half as a result of ISAC.

"ISAC does a lot of the simple tasks that we would have had to go on-site for," he says. "It allows us to remotely look in."

In addition, ISAC can automatically correct problems such as by rebooting an Exchange server.

"Once you see a problem, you can tell the card to fix that problem itself the next time it happens," Keenleyside-Richter says.

ISAC is not intended to compete with system administration tools such as HP's OpenView or IBM's Tivoli, but rather could complement them approaches, Litkey says. Still, analysts say the greatest challenge for Symbium will be explaining how its technology fits in.

"They're really making some very big claims about their ability to deliver levels of service on technologies that every major player is focused on right now," says Charles King, principal analyst at Pund-IT Research.

Symbium ISAC is available for Windows servers now, while a version for Linux is slated to be available early next year. Support for Solaris and VMware also is planned, Litkey says. ISAC is priced starting at $62 per month, per server. ■

PROFILE: SYMBIUM

Location:	Ottawa
Founded:	2002
Employees:	50
Management:	Ben Robitaille, president and CEO; Jay Litkey, founder/vice president of technology; Tony White, CTO.
Primary product:	Intelligent Secure Autonomic Controller, a computer on a card that fits into a server's PCI or PCI-X slot to provide automated, policy-based management for hardware, operating systems and applications.
Funding:	$7.75 million
Customers:	75 deployments, including Nerds on Site, ABM Integrated Solutions.

Short Takes

■ **IBM** has quietly begun taking orders for its first ultra-thin blade server to be based on **Advanced Micro Devices'** Opteron microprocessor. Called the AMD Opteron LS20, the server is based on IBM's BladeCenter design and will be available with a special low-power version of the Opteron. The server, which will be the third Opteron product to be sold by IBM, will begin shipping in June, an IBM spokesman says. Pricing starts at $2,259 for servers based on the Model 246 processor with 1G byte of memory.

■ **HP** and **Sepaton,** a virtual tape start-up company, are expected to announce this week at HP's StorageWorks user conference an OEM agreement for HP to market a disk-based data protection appliance. Sepaton's S2100-ES appliance is the basis of HP's StorageWorks 6000 Virtual Library System, which allows customers to accelerate their back-up performance by using disk rather than tape. Sepaton's appliance has a capacity of 1 petabyte. Pricing information was not available.

Apple OS gains Windows hooks

■ BY JENNIFER MEARS

While Weather Central's newspaper division has exploited Apple's advanced graphics features and manageability for years, it has struggled to integrate the Mac environment with Windows.

The latest release of Apple's Mac OS X operating system, code-named Tiger, should address that concern, says Chuck Sholdt, vice president of operations and co-owner of the daily weather map provider in Madison, Wis.

Mac OS X 10.4 officially launched late last month and includes more than 200 new features, including native 64-bit support on the server and an advanced search tool, called Spotlight, on the desktop. Version 10.4 integrates more than 100 open source projects into the Unix-based server operating system, including the open source file and print server Samba, the Apache Web server and Open Directory.

Open Directory, which enables Mac systems to plug into proprietary directory environments such as Microsoft's Active Directory, is a key feature for Sholdt, who has been testing Mac OS X 10.4 for more than a year and likes what he sees.

Version 10.3, also called Panther, was intended to make it easier to integrate Macs with Windows and Linux environments. But logons and permissions had to be maintained separately. "So we weren't really a member of the rest of the network. With Open Directory we can link to our domain server and become full-fledged members of the Windows world," Sholdt says.

In addition, new access control lists in Tiger give users the ability to set detailed permissions for files and network services, a capability that goes beyond traditional Unix permissions. Other updates in Tiger include the iChat server, which enables users to set up multi-user chat environments based on the open source Jabber protocol and integration of Xgrid, Apple's clustering software.

While Apple has a solid product with Tiger, analysts say the challenge will be getting more IT executives to take a look at the operating system.

Apple is barely a blip in the operating system market, lumped into the "other category" in a stagnant Unix market that accounted for just 11.2% of worldwide server operating environment software shipments in 2004, according to IDC.

Mac OS X Server 10.4 costs roughly $500 for a 10-client license and twice that for an unlimited client license. The desktop operating system starts at $129 for a single -user license. ■

WIRED WINDOWS

Dave Kearns

Running Microsoft's R2 up a flagpole

After more than a year of hype, rumor and heightened expectations, Microsoft finally has put out a version of Windows Server 2003 R2 for us to look at, take a test drive with or rush into production because we need its features now. If any of you believe you need to rush this public beta onto your production servers, the line at the unemployment office is forming to the right.

This is a beta release. A mostly "feature complete" beta release, but still beta. If you want to see what the hoopla is about, run it up on a test server. Compare the new features with those available from both Microsoft and third parties. Start thinking about what you might want to accomplish with this "refreshed" operating system, but be sure not to plan to roll it out anytime this year — it won't be ready.

Just as I wrote about Apple's rollout of the new Macintosh operating system, there's nothing in R2 that's not already available to you. R2 might make the features and technologies easier to use, to integrate or to acquire (fewer vendor sources to juggle) but there's really nothing new. For example, Microsoft is touting R2 as being available in x64 versions, but x64 versions of Windows server 2003 have been around for a while. The company also is crowing that R2 is "built on Windows Server 2003 SP1 for enhanced security." In other words, if you have Win 2003 with SP1, then you're not getting any additional security with R2.

There are some features that are desirable, notably in the areas of Identity and Access Management (IAM) such as federation services across Active Directory security boundaries, single sign-on for both Windows and Unix clients, better use of Web services standards for both enterprise and Web-based applications, and a minimal set of provisioning services.

Other useful features include better management facilities for branch offices, remote users and storage management. But again, these are evolutionary consolidations of features and technologies available today, provided you exert a little effort to locate, install and integrate them.

R2 does offer benefits to the overworked Windows network manager. It should enable you to lower the total cost of ownership for your networks. But there's no need to rush its implementation in a misguided attempt to save time or money. That could actually increase your costs, and hasten your exit.

Kearns, a former network administrator, is a freelance writer and consultant in Silicon Valley. He can be reached at wired@vquill.com.

Tip of the Week

For those of you without a comprenensive **IAM** framework, **R2** will be a big help. We'll cover those features in detail in the Identity Management newsletter (www.networkworld.com/newsletter/dir) over the next few months.

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Application Services

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Short Takes

■ **Microsoft** last week extended its reach in the business intelligence market with a private beta release of a server-based scorecard application intended to help organizations manage objectives. The new application, code-named **Maestro**, builds on the technologies released last year in Microsoft's Office Business Scorecard Accelerator, the company said. That product is a Web-based application that lets users view data from disparate sources and create corporate and departmental scorecards. Maestro also offers a broad view of business data that companies can use to create scorecards for projects and initiatives, but it is more closely tied with the Microsoft Office System. It lets users monitor business goals with analysis tools and features a collaborative environment for sharing information. The software vendor expects corporate performance management to be a growing market in coming years, growing from $520 million in 2003 to $900 million by 2009, citing figures from Gartner.

■ **ScanSoft** last week said it agreed to buy speech recognition software rival **Nuance Communications** in a stock-and-cash deal ScanSoft valued at about $220 million. ScanSoft will use the acquisition to broaden its product portfolio and save an estimated $20 million to $25 million annually through cost reductions from combining the two companies, ScanSoft said. ScanSoft makes digital document management and speech software. In speech recognition, its chief rival is Nuance. Gartner estimated that at the end of 2004 the two vendors together controlled 77% of the market for speech-server systems. Although ScanSoft is the acquiring company, it plans to do business under the name Nuance when the deal closes, the company said. ScanSoft expects to lay off employees in connection with the Nuance deal. It said it anticipates savings from staff cuts, office site consolidations and elimination of redundant operating expenses.

SAP digs in as Oracle revs up

■ BY ANN BEDNARZ

It's become a two-horse race between SAP and Oracle as the two dominant enterprise application vendors vie for greater share of customers' IT budgets. SAP holds a commanding lead over Oracle in terms of market share, but the latter is increasing its efforts to narrow the gap.

This week at its annual North American user conference in Boston, SAP is expected to further detail its progress migrating its technology to a service-oriented architecture — what it has dubbed Enterprise Services Architecture (ESA).

SAP laid out its ESA blueprint in 2003 and a year later shipped the cornerstone, NetWeaver. The NetWeaver integration platform provides a means to compose and orchestrate business processes that cross traditional application silos. Its availability signaled SAP's effort to compete in the traditional business applications market and in the infrastructure realm.

SAP CEO Henning Kagermann will focus his keynote address on SAP's progress in delivering on its ESA vision, says Bill Wohl, vice president of product and solutions public relations at SAP. That progress includes migrating the majority of SAP's applications to the NetWeaver stack, as well as providing a demo-services repository so independent software vendors can start building their own products on top of 500 common SAP services, Wohl says.

In the service-oriented world, SAP's biggest asset is its process expertise culled from years of building business applications, says Joshua Greenbaum, principal with Enterprise Applications Consulting. "But the processes are less interesting, less remunerative to SAP, if they're accessed through someone else's infrastructure," he says. "If they're accessed through NetWeaver, then SAP is selling the razors and the razor blades."

SAP also is expected to use its Sapphire event to play up its recent deals with IBM and Microsoft as the company works to strengthen its partner network. Last month SAP announced an agreement with IBM to optimize Big Blue's DB2 database for SAP applications. Days later, SAP and Microsoft announced their first jointly developed product, code-named Mendocino, designed to connect SAP's mySAP business applications with Microsoft Office.

The Mendocino announcement is a good example of how ESA would provide the flexibility to build composite applications that combine disparate resources, Wohl says. "It's about fast, rapid fixes to business requirements — whether they come from partners, SAP or customers — in a fashion that allows a quick response without a lot of heavy integration work and expense associated with it," he says.

A strong partner network is critical to SAP gaining credibility as a platform vendor, analysts say. "SAP's ecosystem strategy is probably the No. 1 thing, at this point, that SAP has to define, articulate and show results for," Greenbaum says. "NetWeaver won't realize its potential if SAP can't build these partnerships."

But at the same time, SAP has to make sure it clearly articulates what the gaps in its product strategy are, where partners are going to be able to thrive and SAP isn't going to try to compete. "That's a tricky question," Greenbaum says.

As the Sapphire user show approaches, industry watchers also are tuned to the escalating SAP vs. Oracle rivalry. The two are the last remaining independent vendors from among the so-called JBOPS — J.D. Edwards, Baan, Oracle, PeopleSoft and SAP — that reigned supreme in the ERP industry in the late 1990s.

Enterprise IT buyers are showing greater inclination to standardize on fewer software providers, and SAP and Oracle are prime candidates for wresting greater account control at the expense of smaller, more specialized vendors, according to

See SAP, page 26

Holding steady

SAP has a comfortable market share lead over ERP rival Oracle, but now is not the time for the software maker to rest on its laurels.

Challenges	Opportunities
Deliver incremental enhancements along multi-year transition to services-based application model.	Continue to steadily grow North American customer base.
Earn credibility as a platform vendor.	Capitalize on Oracle's post-merger distractions.
Strengthen partner ecosystem.	Refine vertical industry expertise.

Brokerage firm shaking up insurance industry

■ BY JOHN FONTANA

The insurance industry is getting a jolt of technological savvy from a company of forward-thinking brokers who have established the first-ever online auction site focused on selling unwanted life insurance policies.

Life Settlement Insights late last month kicked off its new auction site LifeX, the first online exchange in the life insurance settlement industry. The industry is a niche of the insurance market that has grown to a nearly $15 billion business over the past few years.

Life insurance settlement deals with insurance policies that are no longer wanted by their owners, mostly because they can no longer pay the premiums that increase as policyholders age.

Those policyholders have traditionally had two options: Stop paying premiums and walk away empty-handed or take a cash payout from the insurance company, usually a small percentage of the policy's value.

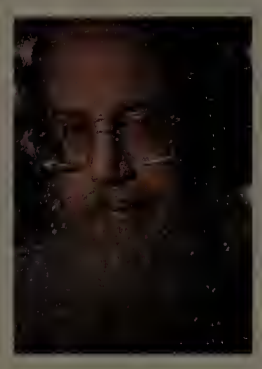
But now the life settlement industry offers the option of selling the policy to the highest bidder, typically institutional investors. The buyer pays the policyholder a fee, typically between 15% and 20% of the policy's value, takes over payment of the premium and then collects the payout when the policyholder dies.

"The returns on these policies is typically between 9% and 12%. That is why institutional buyers like them," says Jim Cavoli,

See Insurance, page 26

'NET INSIDER

Scott Bradner



Protecting the past

The U.S. Court of Appeals for the District of Columbia Circuit recently tossed out the FCC's attempt to provide a technical protection system for the movie industry. The court did not address whether the FCC's idea had merit; it ruled that the FCC blithely ignored Congressional limits on its authority when it mandated that "broadcast flag" support be included in a range of electronic devices starting this summer.

This is not likely to be the end of the story. The broadcast flag is a command inserted into a movie or other broadcast that can be used to tell receiving devices to limit the user's ability to make copies of the material. In late 2003, the FCC ordered that all devices that could be used to receive digital over-the-air broadcasts include logic to recognize and obey the broadcast flag command by July 2005.

Over-the-air broadcasts were the first target of the broadcast flag, but it would take someone of determined naiveté not to think that the movie industry would push to have the FCC mandate the same sort of flag processing for cable TV and other wired delivery methods if the technology proved itself on over-the-air broadcasts.

I wrote about the broadcast flag when the FCC first mandated it (see www.networkworld.com, DocFinder: 7125). At the time I wrote, "the FCC's order is not nearly as bad as the movie industry wanted it to be, but it's bad enough." But the new court decision (DocFinder: 7126) does not address how bad the idea is — it just addresses the legal standing of the American Library Association (ALA), which instigated the lawsuit, and the authority of the FCC to control what devices can do with a transmission after receiving it.

The court basically said the ALA had standing because broadcasters could use the flag to stop librarians from making copies of parts of broadcasts that they are legally entitled to make. The court also said the statutes that empower the FCC to regulate communications limit it to dealing with transmissions up until the time they are received. The authority does not extend to controlling what happens after the reception. Because of this, the court ruled that the FCC exceeded its authority when it ordered that manufacturers support the broadcast flag. So the FCC mandate is gone, at least for now. The government might appeal the court decision, but it looks like a long shot. That doesn't mean this type of protection for old business models is dead. There is plenty of tradition behind getting Congress to protect those too stupid to adjust to new worlds. The chance that Congress will try to do this again is close to 100%.

Disclaimer: At least parts of Harvard are all about adjusting to new situations, but the above observation is my own.

Bradner is a consultant for Harvard University's University Information Systems. He can be reached at sob@sobco.com.

SAP

continued from page 25

AMR Research. The research firm estimates SAP will capture 43% of ERP market share in 2005, compared with Oracle's 19%.

SAP has a comfortable market share lead over Oracle and likely isn't worrying much about losing that lead, says Jim Shepherd, senior vice president at AMR.

Oracle has a lot of ground to make up with its enterprise applications business, agrees Greenbaum. Its strategy for the last two years has been to buy PeopleSoft. And even before that, Oracle didn't devote a lot of development or marketing resources to its applications business, he says. "Oracle is coming off three years of lackluster attention and performance. Now it's really trying to rev up its engine, but it's missed out on a lot of leadership opportunities already," Greenbaum says.

"Oracle has a lot under the hood. It has strong technology but it's been handicapped by its merger and acquisition activity."

Joshua Greenbaum
Principal, Enterprise Applications Consulting

One of Oracle's longstanding flaws has been its inability to unite its applications and infrastructure products in a coherent way. "If Oracle can do that, it can mount a serious challenge," he says. "Oracle has a lot under the hood. It has strong technology, but it's been handicapped by its merger and acquisition activity."

Most recently, SAP missed an opportunity to widen the gap with Oracle when it lost a bidding war for retail software maker Retek. A battle for Retek ignited after Oracle bested SAP's initial $8.50 per-share ($496 million) offer. After some back and forth, Oracle eventually prevailed with a $11.25 per share offer.

While there's little long-term damage, losing Retek to Oracle was disappointing to SAP, which now will have to look elsewhere for ready-made retail industry expertise, Greenbaum says.

Retek could have been a market accelerator for SAP, Wohl acknowledges. But even without it, SAP remains the leading software provider in the retail industry, he says. "In the wake of Oracle overpaying for Retek, we've talked once a week about a major win for SAP in retail." At this week's Sapphire show, SAP is expected to announce the addition of another major retailer to its customer list, he says.

With respect to Oracle, Wohl downplays any mounting concerns at SAP. "Oracle is always worth keeping a close eye on, but they are very distant in our rearview mirror," he says. Oracle will have a lot of work to do to assimilate PeopleSoft, J.D. Edwards, and Retek, he says. "All of this bulking up has not translated into a significant catching up on SAP."

Nonetheless, given Oracle's potential, SAP needs to keep up its guard.

"As a market leader, SAP has to keep reinventing itself," Shepherd says. So far it has — successfully adapting over the years to shifting mainframe, client-server, Web-based, and now services-oriented requirements, he says. "SAP has shown a remarkable amount of agility for a $9 billion company."

Looking ahead, SAP can expand on its vertical industry expertise, which is one of the things the company does better than anyone else, Shepherd says. By emphasizing vertical application features, SAP can raise the bar for all the other application vendors, he says.

SAP continues to enhance its industry-specific offerings, particularly related to four key industries — retail, public sector, banking and insurance — SAP identified at the beginning of the year, Wohl says. At Sapphire, SAP plans to announce customer wins in each of these industries. SAP also will unveil upgrades to its industry-specific CRM products, he says. ■

Insurance

continued from page 25

CEO of Life Settlement Insights. And sellers are just as happy because they receive a higher payout than they would typically get from the insurance providers, he says.

The problem, however, is linking up the sellers and buyers and negotiating the deals. The process has been manual, labor-intensive and expensive. Deals also take weeks to transact as brokers run between buyers looking for the best deal. But Life Settlement Insights, which negotiates on the behalf of the sellers, is out to change all that and trump its competition in the process.

"Fundamentally, right now, what we want to do is make the negotiation efficient," Cavoli says. "We want to take it from three to six weeks down to 30 minutes."

Last month, the firm's first-ever auction lasted an hour, ran in real-time and included bidders from five states. He says the bidders concluded that the process could be cut to 30 minutes.

"There is no limit to the number of buyers for the online auction, whereas physical requirements limit what I can do manually," Cavoli says. "We are working 40 to 50 deals at any given time, and to do that across six to 15 buyers becomes an onerous task for our staff. And the buyers get a great deal of benefit because if you were not at the top of my Rolodex, you were not getting a call from me and you were not engaged."

Analysts say the ability to streamline the process will be key.

"If they can keep costs low enough they might get enough volume to make it worth their while, but it doesn't sound to me like something that is going to take the industry by storm," says Matt Josefowicz, manager of the insurance group at research firm Celent.

Life Settlement Insights went online with auction service provider HedgeHog, which also runs auctions for the hotel industry and healthcare. The company runs its site on Windows servers that support a Java front end for browser-based access and an Oracle back end for data storage.

"It's pretty straightforward what we do," says Jemin Patel, founder and CEO of HedgeHog. Patel says HedgeHog customized its proprietary auction application to support LifeX, including the capability to handle the large dollar amounts the auction deals with and its open-forward auction format where bids are sequentially increased until the bidding tops out.

For the first auction, Life Settlement Insights provided buyers with a few weeks of preparation time to review the policies and run their pricing analysis. Then the auction kicked off.

"As the first movers, we find a lot of people want to come to our brokerage now to sell their policies because they like the idea of getting an answer soon, and they like the idea of knowing that they are getting fair market value, which is objectively measured by the lack of further bids," Cavoli says.

Cavoli sees a day when this technology might be the standard industry wide, even perhaps spinning off a separate company that would contract with any number of brokerage firms.

"This is where we would like to see it go, but right now this is a cost-savings tool for us," he says. ■

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Special Focus

ENTERPRISE SOFTWARE: Management packages

Network management goes open source

■ BY DENISE DUBIE

Despite vendors' best efforts, the perception of network and systems management products is that many are high-priced, require lengthy deployment cycles, entail multiple integration efforts and necessitate time-consuming customization.

But open source vendors and developers are bringing a new breed of products to market that could shatter that perception and provide customers with inexpensive, flexible and easy-to-integrate management tools. Freeware applications such as Multi Router Traffic Grapher and Big Brother have been around for decades in a majority of IT departments as tools users turn to when commercial products can't deliver, but because of scalability and support concerns, the applications rarely take off in enterprise-wide rollouts.

Today's open source tools have been commercialized by vendors such as GroundWork, Hyperic and others, which also provide customers with support and maintenance contracts that often aren't part of a freeware or shareware deployment. And while these tools aren't free, they don't carry the $1 million price tag of a BMC Patrol, Computer Associates Unicenter, HP OpenView or IBM Tivoli — and according to early adopters, open source management products can offer atypical benefits.

"The financial benefits of open source are simply a byproduct of the real gain it offers us. We can control our time to market to our customers using open source," says Andres Andreu, technical director of Web engineering and applications for advertising giant Ogilvy & Mather in New York.

Andreu uses Hyperic HQ to monitor Web servers and Web services across the firm's global infrastructure. He says about three years ago he went shopping for a management platform and didn't discover one tool to meet his needs — which included monitoring open source tools such as JBoss, Apache and MySQL. Because the IT shop at Ogilvy & Mather must work as quickly as its business counterparts, Andreu says he needed a product that he could quickly manipulate to meet his needs.

"The source code is available and it helps me write plug-ins to get the level of granularity I need," he says.

Hyperic HQ is actually a hybrid product of sorts — part open source and part proprietary technologies. Hyperic was spun out of Covalent, which focused on the security and support needs of the Apache Web Server, and Hyperic took Covalent Application Manager and broadened its reach to include the ability to manage the entire Web and open source infrastructure stack, says Javier Soltero, Hyperic CEO.

"Open source in general is still painful when it comes to the process of getting it rolled out, and customers are still in the migration process so we included both commercial and open source technologies," Soltero says. "We worked to get our install time down to a minimum."

Hyperic HQ is installed on a dedicated server and comes with a built-in database. Customers deploy agents on all managed machines, and the agents report back to the server only when conditions have changed or an alert is necessary. The software monitors various platforms ranging from Tomcat to Citrix to Apache to Linux to Solaris to Windows to VMware and more. The software delivers data and reports via a Web-based interface.

The difference between Hyperic HQ and freeware monitoring applications such as Nagios (formerly NetSaint), Soltero says, is that Hyperic HQ can report on upcoming performance issues and not only alert on events after the fact.

Mark Douglas, vice president of engineering and operations at online dating company eHarmony in Pasadena, Calif., says the "broad footprint" of Hyperic HQ drew him to the product, and the open source aspect was an added bonus. He uses the software to monitor network switches, storage arrays and application servers.

"It gives us an integrated view of the whole stack, hardware and software, including our open source tools," Douglas says. "We aren't predominantly open source, but it's definitely part of the environment."

As for the added bonus Douglas mentions, he says Hyperic HQ not only manages storage arrays from EMC, but also the equipment from smaller vendor 3Par.

"I am not sure if it's just a general openness with the software, but it supports just about everything I have, and I can write plug-ins specific to my environment," he says.

Another newcomer to the management market, GroundWork this year unveiled GroundWork Monitor, which is an extension of Nagios open source monitoring application. The software runs on a Linux server with memory in disk and can be used either with or without agents. The agent option, recommended by the vendor, essentially uses a Perl script that runs on managed devices, and extracts management information from the device's Management Information Base to send to the central server. Customers also have the option to write plug-ins specific to their environment to further broaden the software's monitoring capabilities.

Despite the optimism of early adopters, open source in the management realm is still quite immature. As with most technologies, adequate management technologies follow mainstream adoption and always need to play a bit of catch up.

"Network and systems management tools are one of the least mature areas of open source," says Michael Goulde, a senior analyst at Forrester Research. "A few companies have taken open source tools, such as Nagios, and built on those capabilities, but the Holy Grail in management is still end-to-end application management across the client to back-end servers. And the technology isn't there yet — in the commercial or open source world."

EHarmony's Douglas would like to see more advanced reporting in Hyperic's software, and Lamonica would like GroundWork to develop hooks from its Monitor software into network and physical security devices across his company's multiple construction sites.

"The tool gives a good picture of the average statistics, but we need to also be aware of the extremes and get granular high-low reporting," Douglas says.

Lamonica adds, "It would be ideal to have this tap into [intrusion-detection] systems and see all security and network events in one console."

While early adopters can extend the code for many purposes, they say the vendors need to continue development, as well. One plus of open source — the availability of the source code — could represent a double-edged sword of sorts to inexperienced network managers.

"The benefit of extending that source code could be lost if someone doesn't have the skills to do it," Goulde says. ■

Open management

Both commercial products and shareware apply the easy-to-install and integrate values of open source to network and systems mangement tools.

Company	Product	What it does	Price
GroundWork Open Source Solutions	GroundWork Monitor	Queries applications, network equipment, servers and other components to identify availability and performance.	Turnkey package, $[illegible] $10,000 per year.
Hyperic	Hyperic HQ	Auto-discovers all the hardware, software and services deployed in an infrastructure, populates a built-in database and delivers alerts through a Web-based portal.	$65 per month, or $780 per year.
Nagios	Nagios 2.0b3 (formerly NetSaint)	Runs intermittent checks on hosts and services using external plug-ins.	Licensed under the terms of the GNU General Public License Version [illegible]
Multi Router Traffic Grapher or MRTG	MRTG 2.11.1	Monitors traffic load on network links, generates HTML pages containing Gif images, which provide a live visual representation of the traffic.	Freely available under the terms of the GNU General Public License.

ServiceProviders

■ THE INTERNET ■ VPNS ■ INTEREXCHANGES AND LOCAL CARRIERS
■ WIRELESS ■ REGULATORY AFFAIRS ■ CARRIER INFRASTRUCTURE

Fiberlink, Skype team to offer VoIP

■ BY DENISE PAPPALARDO

Fiberlink has inked deals with firms to offer its customers VoIP, 3G wireless and anti-spyware options when traveling worldwide.

Fiberlink offers remote access services and client software to businesses. The company is teaming with Skype and Webroot Software to offer new applications, access and security options.

For the first time Skype, which is best known as a peer-to-peer VoIP service provider for consumers, is teaming with a service provider that squarely focuses on enterprise users.

"This is a fairly significant announcement showing Skype is trying to get legitimate within the business world," says Michael Disabato, service director for network and telecom strategies at Burton Group.

Skype, which claims 38.2 million users, seems to be listening to analysts who say that lack of security and corporate billing options will prevent more companies from signing on to the service, despite cost savings.

According to a March report from Gartner, users who travel nine months per year could save more than $14,000 annually by using Skype's service, which is free when calling another Skype user. The savings result from eliminating per-minute service rates for calls from overseas to the U.S., which typically are around $2, according to Gartner. But users should keep in mind if they make calls from their Skype client to a traditional phone, they will not see the same cost savings because users have to pay a per-minute rate for off-net calls.

But in the same report Gartner says, "Skype needs to improve its support structure, which does not match corporate expectations." And that might be one reason it is teaming with Fiberlink.

Fiberlink customers now will be able to make VoIP calls over the Internet using the service provider's secure client Extend360. Fiberlink customers will be able to make off-net calls and not worry about making PayPal payments for each call, which is the only way that Skype accepts payments today. Instead, Fiberlink is offering corporate monthly billing for all off-net calls.

Extend360 customers are making calls behind a personal firewall running on their PCs, which offers additional security.

Using that client, IT managers should be able to set policies that limit the number of off-net calls a user can make per month, Disabato says.

"Teaming with a provider that business users trust and have a relationship with already is a big step for us," says Kelly Larabee, a spokeswoman for Skype. "Security is one of our favorite things about Fiberlink."

While Skype wouldn't say if it plans to team with other service providers, Larabee did say the company is "looking to partner with world-class companies across a broad range of industries."

In addition to coupling easy-to-use, low-cost VoIP services with its client, Fiberlink also is offering wireless 3G data options. The carrier is teaming with an unnamed service provider to offer Evolution Data Optimized (EV-DO) high-speed wireless data services to its customers. Fiberlink says it expects to name the service provider at a later date.

Disabato says it's likely that Fiberlink is teaming with Verizon Wireless because it has the most robust EV-DO deployment so far. But he points out that the service provider also could be Sprint, which uses Fiberlink's client for its remote access service offering.

EV-DO is a wireless data technology that supports average transmission speeds of about 300K to 500K bit/sec. The technology maxes out at about 2.4M bit/sec.

Fiberlink is offering EV-DO access as part of a bundle. Customers can get unlimited EV-DO, Wi-Fi, hotel broadband and dial-up services for $100 per month, per user, says Bill Wagner, chief marketing officer.

Fiberlink is teaming with anti-spyware vendor Webroot Software. The service provider is integrating the Webroot software with its client so users can easily and regularly update their anti-spyware software.

The integration will allow network managers to monitor how often users have updated their Webroot software and build policies around that. A network manager could have a policy that says if a user has not updated his anti-spyware software in six months, he is not permitted to access the VPN. ■

Short Takes

■ **Sprint** has agreed to work with **Intel** to help get a mobile form of WiMAX off the ground, signaling the mobile operator's interest in the technology for potential high-speed wireless services. The deal calls for collaboration on the development of technology based on the emerging IEEE 802.16e specification. That standard, which is not expected to appear in generally available products until 2007 or 2008, is designed for WiMAX services that customers can use while on the move. The companies will work together on product specifications, interoperability tests and equipment trials, according to a joint statement.

MPLS makes a lot of sense . . . some of the time

EYE ON THE CARRIERS
Johna Till Johnson

I've heard from several telecom managers who are assessing Multi-protocol Label Switching-based services for their WANs. Given the growing momentum behind the technology, it makes sense to ask whether MPLS-based services are right for your organization.

First off, MPLS is a technology, not a service. Most carriers run MPLS underneath a wide range of services, including frame relay, wide-area Ethernet, native IP and ATM. The advantages accrue primarily to the carrier. User benefits include lower cost in most cases, greater control over networks, and more detailed QoS. In fact, QoS is the primary reason IT executives opt for MPLS — in a recent Nemertes benchmark, 62% of organizations told us they're using MPLS today or plan to deploy it, with 55% listing QoS as the main reason.

MPLS-based services are a good fit in the following scenarios:

- Your company has a lot of any-to-any traffic. Any-to-any traffic requires N-squared number of connections — an expensive proposition in network technologies that charge by the circuit, such as frame or ATM. Most companies don't have a lot of any-to-any traffic, unless they're engaged in a convergence project. The majority of today's applications tend to be client/server, which generate hub-and-spoke traffic patterns. For these, switching to MPLS doesn't buy much: Firms report around 10% cost savings as compared with legacy frame or ATM. But the scenario changes dramatically when MPLS is used to converge voice and video — or with next-generation software architectures.
- You're planning a convergence project. Most firms see immediate savings — 25% or more — when they begin combining voice and video traffic over the MPLS WAN. Video often is carried over ISDN circuits that are expensive. Consolidating this traffic onto a data network can eliminate the need for an ISDN network, generating immediate savings. Also, both video and voice tend to have any-to-any traffic patterns, unlike legacy data apps — so the any-to-any cost savings begin to kick in.
- You're planning to deploy next-generation computing infrastructure such as Web services, peer-to-peer or grid computing. Web services and peer-to-peer generate any-to-any traffic patterns; grid computing does the same, and often requires QoS capability. In fact, for some financial services firms, grid computing is the primary driver behind MPLS.

If any of these scenarios apply, you'll want to look into MPLS-based services. But please don't jump on the bandwagon just because MPLS is "the next big thing" — you should sort out what MPLS can and can't do for you before taking the plunge.

Want to learn more? Check out MPLSCon in New York this week. You'll see real-world examples of MPLS deployments from the U.S. Department of Agriculture, the state of Illinois and others. (Full disclosure: Both yours truly and my co-columnist Scott Bradner will be keynoting.) For more information, check out www.networkworld.com, DocFinder: 7129.

Johnson is president and chief research officer at Nemertes Research, an independent technology research firm. She can be reached at johna@nemertes.com.

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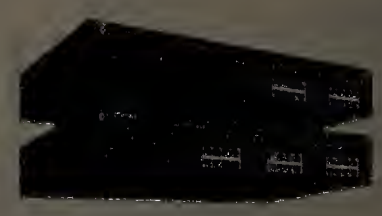

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Technology Update

■ AN INSIDE LOOK AT TECHNOLOGIES AND STANDARDS

IPv6 addresses demand for space

■ BY KARL SIIL

IP address space is becoming scarce under IPv4, the main Internet communications protocol. Growing demand for Internet-enabled devices requires more space for growth. Wireless carriers would like to tie a unique IP address to every phone, pager and PDA, and household appliance makers are experimenting with smart connected devices such as refrigerators and washing machines.

IPv6 offers an enhanced addressing scheme that leaves room for growth. IPv6 has been around since the early 1990s, but the lack of a killer application has slowed its acceptance in the commercial world. Recent events indicate IPv6 might take off soon.

Late 2004 saw the activation of Cernet2 — the next-generation Internet in China and the largest IPv6 network in the world. The U.S. government's deadline for its IPv6 rollout and compliance is February 2008. Businesses, especially those with Asia-Pacific or U.S. government interests, might find themselves pulled into IPv6 by the need to connect to their colleagues.

Got great ideas

■ *Network World* is looking for great ideas for future Tech Updates. If you want to contribute a primer on a specific technology, standard or protocol, contact Amy Schurr, senior managing editor, features (aschurr@nww.com).

IPv6 is a direct plug-and-play replacement for IPv4. All major operating system and network hardware vendors support IPv6, and ISPs are starting to offer IPv6 connectivity. The only thing remaining that holds back IPv6 deployment is the massive effort required for corporations to re-address millions of computers, routers and other Internet devices. But this effort is slowly starting to gain momentum.

The basic IPv6 header is far simpler than the IPv4 header. Each header contains source and destination addresses for packet, payload length, hop limit (equivalent to the IPv4 Time To Live field) and a field indicating the protocol encapsulated in the packet, such as TCP or User Datagram Protocol (UDP).

Significant differences arise in the size of the address space and its layout. An IPv6 address has four times as many bits as an IPv4 address — 128 vs. 32. To simplify using IPv6 addresses, the dot-separated eight-bit decimal fields of IPv4 are replaced with colon-separated 16-bit hexadecimal fields, such as 3ffe:501:185b:1:2e0:18ff:fea8:16f5.

IPv4 addresses are assigned by Regional Internet Registries (RIRs) worldwide, such as the American Registry for Internet Numbers (ARIN) in the Western Hemisphere, using Classless Inter-Domain Routing (CIDR) blocks, such as 134.151.0.0/16. CIDR block assignments range from hundreds to millions of addresses per block, and the numbering of the blocks has little relation to the worldwide address structure.

IPv6 addresses, also assigned by RIRs, are more structured. Various addressing schemes are defined and identified by the high-order bits of the address block. The most popular scheme splits addresses in half — 64 bits for the network and 64 bits for each device. The high-order 64 bits are composed of 32 bits for the RIR, such as ARIN; 16 bits for the local Internet registry or ISP; and 16 bits for the site to which the address belongs. Each site, reminiscent of what was once called a Class-B address block, allows for up to 65,536 devices.

The low-order 64 bits of a given address are used for the interface identifier, such as a specific interface on a device. In the above example, 3ffe:501:185b:1 represents the specific device and 2e0:18ff:fea8:16f5 represents an interface on that device.

Migration to IPv6 requires the systematic renumbering of all of a corporation's IP addresses, ideally first in small well-structured pilot projects to understand how best to use the address space. This would be followed by renumbering of particular locations or business units with IPv4/IPv6 mapping devices on the boundaries. Eventually, as the entire industry migrates, these mapping devices can be removed from internal boundaries When there's enough of an IPv6 Internet to connect, for example, to all of the given corporation's customers, and vendors are also accessible via IPv6, the external mapping devices could be removed, as well.

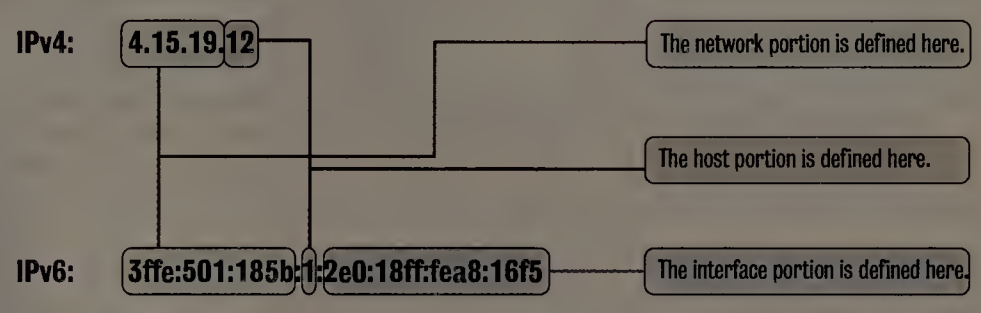
Siil is chief architect of Lumeta. He can be reached at karl@lumeta.com.

■ HOW IT WORKS

Dissecting the differences: IPv6 vs. IPv4

An IPv6 address has more order to it than an IPv4 address. Each type of address is typically associated with a Classless Inter-Domain Routing (CIDR) block that specifies network and host portions of the address. But the IPv6 address also has an interface portion that IPv4 addresses don't have.

For example, take these two addresses. Let's say the addresses come from the CIDR blocks 4.15.19.0/24 and 3ffe:501:185b::/48, respectively.



Ask Dr. Internet

By Steve Blass

I've seen private virtual LANs described as a way to isolate DMZ servers from each other by restricting traffic between switch ports. Cisco's private virtual (PVLAN) let ports be promiscuous, isolated or members of a community. Promiscuous ports talk to any ports, isolated ports talk only to promiscuous ports, and community members talk to promiscuous ports or other community members. If in our LAN environment we placed printers and servers on promiscuous ports and workstations on isolated ports, could we reduce the risk of compromised PCs spreading worms and malware?

Limiting LAN workstations to server-only connections through PVLAN switch configuration settings could reduce risks. Trunking protocol settings and device routing rules can override PVLAN switch restrictions, so you will need to provide virtual LAN (VLAN) access control lists that block intra-workstation traffic along with the PVLAN port assignments. Restrict the range of media access control addresses allowed to connect to each switch port. For even more security, collect unused ports in a VLAN with no Layer 3 access permissions. PVLAN implementations that can operate in IEEE 802.1q VLAN environments are available from Cisco and others.

Blass is a network architect at Change@Work in Houston. He can be reached at drinternet@changeatwork.com.

GEARHEAD INSIDE THE NETWORK MACHINE

Mark Gibbs

We get a Mac, find a tool and see a city

After many years of being a Windows-only shop we finally acquired a Macintosh: to be precise, a Power Mac G5 with dual 2-GHz PowerPC processors and 1.5G bytes of RAM running Mac OS X Tiger and iLife '05. Wow. We can see there's a real danger of becoming a Mac zealot. The system is amazingly fast, beautifully engineered and gorgeous to look at.

What we'd like to know from all of you Mac addicts is what cool tools should we run? We're interested in IT software and the stuff that's just plain fun.

Anyway, back to the world of Windows: How often do you need to transfer data displayed by a program to create a to-do or a contact item in Outlook or on your PDA? For example, you might go to a travel site, book a flight and then want to create an appointment in your Outlook calendar.

Sure, you can select the data, copy it to the clipboard, open a new appointment item, paste the data, and then set the date and time fields accordingly. But given that all or most of the data needed to make the appointment is already there, doesn't this seem like a golden opportunity for automation?

For ages we've wanted a tool that would solve this problem and we have finally found one that does the job. Anagram by Textual (http://getanagram.com) parses data from selected applications to generate contact items, appointments, notes and to-do list entries.

Installation is trivial. The most challenging part is deciding where to install the program and whether you want Anagram to integrate with Outlook, Palm Desktop (including specific support for Iambic's Agendus) or Salesforce.com.

To create an item in the target application, you use the mouse or cursor keys to select text and then use the hot key — by default this is Control-C quickly entered twice. Anagram will then parse the selected data using rules the company describes as artificial intelligence to determine what kind of item to make.

If you don't want the data saved as the type of item that Anagram assumes it to be press Alt-Tab, and a dialog box will appear that lets you select an alternative type.

On the whole, Anagram works well although you should be careful not to include text that might be confusing. For example, *Network World's* address at the top of www.networkworld.com/contact/default.html confuses Anagram, which correctly creates an Outlook contact item but sets the Full Name field to "Local."

In fact, if you install Anagram, go to Textual's own contact page (DocFinder: 7130), select its address, "Postal Address: | Textual | PO Box 391215 | Cambridge, MA 02139" (the bars stand for line breaks) and try to make a contact from it, the company's name is assumed to be "Postal." "Address" is ignored and "Textual" is taken as the first line of the address.

We asked the publisher "Wazzup?" and they told us that they keep adding refinements to improve Anagram's parsing abilities. The fact is that despite the occasional goof, Anagram is worth every penny of its $19.95 price tag. Want to use it at home or on your laptop, as well? That will be an extra $6.95, as will simultaneous support for Outlook and Palm Desktop. Textual's pricing for Salesforce integration is a different model: $6.95 per month.

VisitorVille

Our final soupcon for this week is a tool for visualizing your Web traffic called VisitorVille from World Market Watch (www.visitorville.com).

VisitorVille runs under Windows and shows live data from instrumented Web pages that are monitored by the VisitorVille hosted service or historical data from the log of the monitored Web server.

VisitorVille displays a "SimCity"-like city complete with people and vehicles. Web pages are buildings and masses of visitors coming from the big search engines are shown as buses that drop off visitors. Taxis, fire trucks, armored cars or police cars transport visitors between buildings, and you can choose a specific vehicle type to take visitors to a given building.

This is a remarkable achievement in presenting data, although how effective VisitorVille is in portraying site activity over the long term as compared to other, more conventional Web metrics tools is hard to say. Check it out and let us know what you think.

Opinions to gearhead@gibbs.com and get your fill of Gearheadedness at (www.networkworld.com/weblogs/gearblog).

Cool Tools

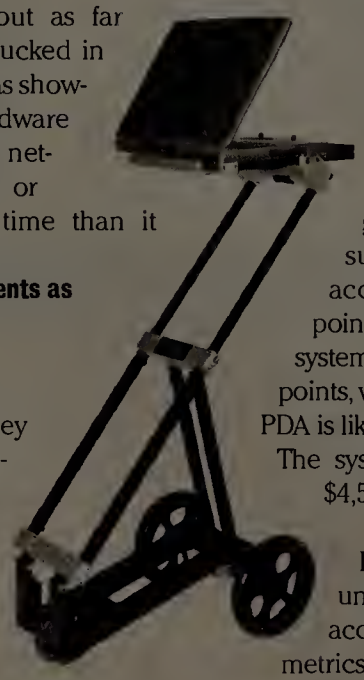
Digging for cool at Interop

Quick takes on high-tech toys

By Keith Shaw

Now that we've had some time to dig through our notes, I actually did discover some very cool products at Interop 2005 in Las Vegas. It's not always about the latest giant switch....

Helium Networks was located about as far away from the entrance as possible, tucked in the wireless company zone. Helium was showing its Wireless Recon system, a hardware and software combination that lets network managers conduct site surveys or audit 802.11b/g/a networks in less time than it would take using traditional survey methods. SiteScout also let administrators collect real-time and precise location wireless measurements for ongoing maintenance.



The SiteScout cart takes WLAN measurements as you wheel it around.

The system includes a laptop with the company's SiteSense software sitting on the SiteScout hardware. The wheels of SiteScout measure distance and direction as the Wi-Fi card inside the laptop measures signal strength from all access points within range of the notebook. The location and signal-strength data is then compiled into a color-coded coverage map to let engineers look at signal strengths for each access point or group of access points. Once layouts are created, users can physically move access points and then recreate the coverage map and document changes. SiteSense also can help maximize frequency-channel assignments for access points, Helium says.

Two things struck me as cool with this system: the ability to get more signal-strength measurements tied to actual physical locations (integrating measurements within the wheels is superb), and getting measurements that more accurately represent the signal strength of an access point (most radio frequency spectrum-management systems take measurements at the level of the access points, which are often in ceilings, not where a laptop or PDA is likely to be).

The system (hardware and software) will cost about $4,500. Helium plans to ship systems later this month.

Data that sits on a USB hard drive is relatively unsecure — if a device is lost or stolen, anyone can access the data on the drive. Some systems use biometrics for authentication and encrypt data, but a lot of authentication and encryption processing needs to occur on a host PC. The Stealth device from **Memory Experts International** changes this. Stealth is a stand-alone, portable, USB-powered secure storage device that includes an on-board CPU and hardware-based cryptographic engine. This lets fingerprint scanning and matching, as well as password authentication, take place on the device. Data can be encrypted with 256-bit Advanced Encryption Standard security and stored on the device through flash memory or on a microdrive, the company says.

The Stealth storage drive includes an on-board CPU to provide all authentication and encryption.

At first glance the $199 Eli security appliance from **Electronic Lifestyle Integration** (ELI) may seem like a consumer product, but corporate security managers looking to better secure their teleworkers or mobile employees should look closer. Eli is a fully managed broadband security appliance that features a firewall; anti-spam, anti-virus and anti-spyware protection; content filtering; a four-port switch; VPN support; and a wireless gateway.

The system's value is not the hardware (most of these features are available from low-end network vendors), but ELI's plan to provide managed security services. For a monthly fee of about $10, ELI will provide daily, if not hourly, updates to a box whenever a new anti-spam signature, virus signature or security hole is identified. For companies needing to securely support a remote workforce, the Eli box and service looks to be a slam-dunk.

Shaw can be reached at kshaw@nww.com.

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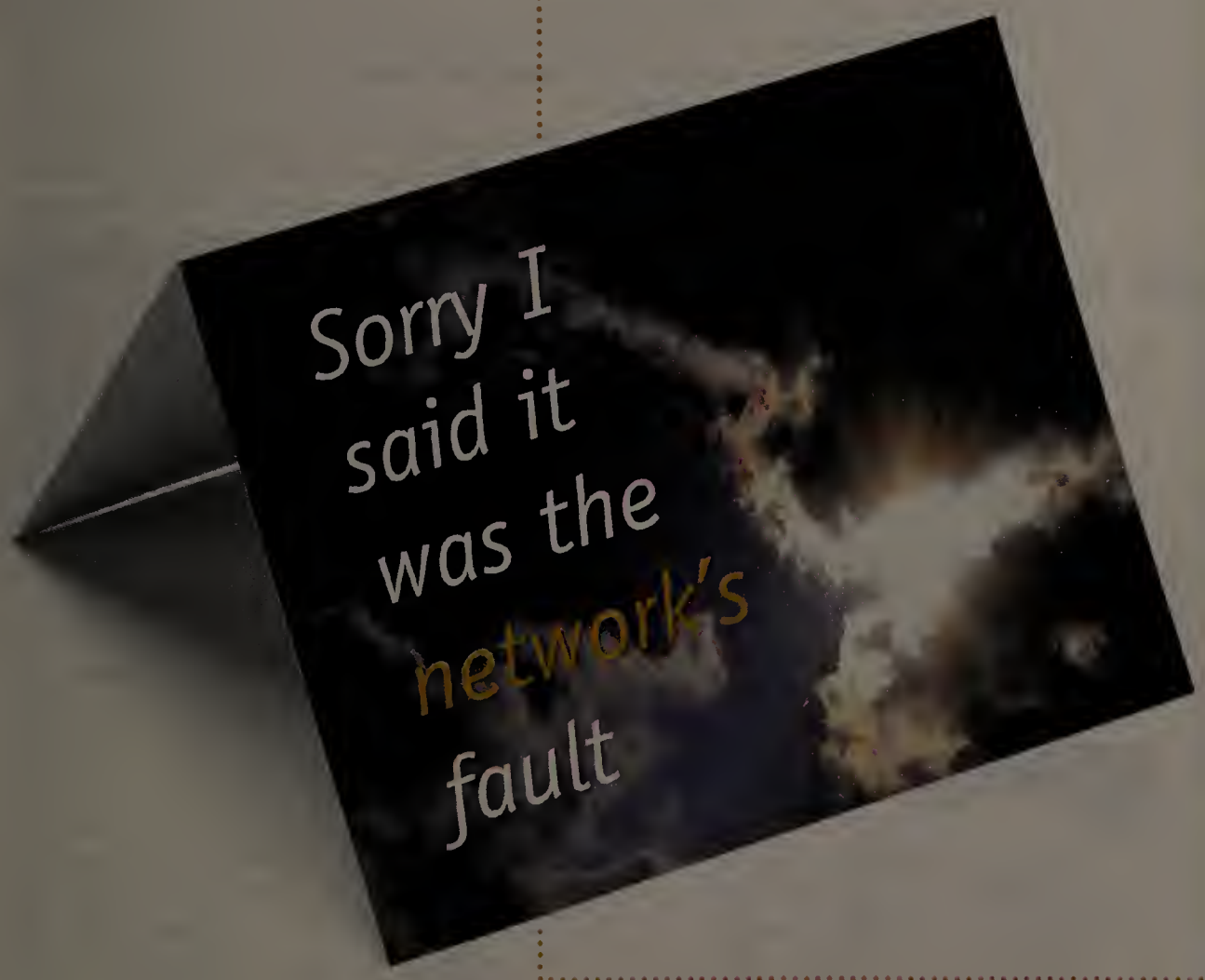

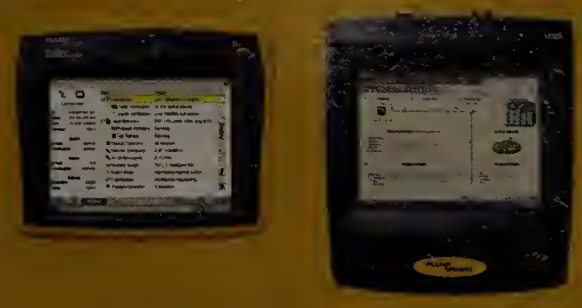

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ON TECHNOLOGY

John Dix

AT&T: Investments paying dividends

Although questions about SBC's pending acquisition of AT&T won't be answered any time soon, we caught up with Hossein Eslambolchi, president of AT&T global networking technology services, at Interop for the latest news about the deal and an update on the core developments he has been pushing in AT&T for several years.

Eslambolchi, who also holds the titles of president of AT&T Labs, and AT&T CTO and CIO, said the soonest the merger will happen is in 2006. Nothing has been announced about company structure, but he says the core groups probably will consist of business services, consumer service, long-distance consumer, government solutions and wireless. And of course, some form of labs.

In terms of the company networks and IT environments, Eslambolchi said the long-distance assets will be integrated, the AT&T global IP network will become the standard because SBC leases capacity from other carriers, and it is likely that AT&T's IT systems will be retained because of their efficiency.

Many of those efficiencies stem from two of Eslambolchi's pet projects, the Concept of One and the Concept of Zero, which the company has been working on for three years.

Under the Concept of One, Eslambolchi has pushed to consolidate the 800 disparate AT&T systems used to manage the network. "We're down to 350 today and the objective is get it down to 20-50 by year-end 2007." As an example, AT&T used to have a fault management system for IP, another for optical, another for frame relay, etc. Now it has a global fault management system that can correlate alarms and faults, so it is evident a fiber cut also is responsible for a frame problem.

With the Concept of Zero, Eslambolchi is striving to reduce the human-to-human and human-to-computer interactions required to get work done. The goal: automate everything possible. One success story: The company used to have several hundred Web portals for business services. They have since been rolled into one portal called AT&T BusinessDirect, which automates order-handling.

That portal now supports 25 million transactions annually and has reduced cycle times for processes such as ordering IP service from 120 days to less than 26, Eslambolchi claims. "Orders used to be handled 12 times, now 90% are not touched by humans."

Taken together, he says the advances have enabled AT&T to improve network performance and the customer experience while scaling back head count over the years from 55,000 to 21,000. If your experience is different, iet us know.

As for Eslambolchi, his next trick will be extending the advances to SBC.

— John Dix
Editor in chief
jdix@nww.com

opinions!

Catching red herrings

Kudos to Johna Till Johnson for her column on VoIP and 911 (www.networkworld.com, DocFinder: 7122). She's right on target with her assertions about the true reason behind the reluctance of Vonage and other VoIP vendors to integrate their systems with the existing E-911 infrastructures.

I am weary of the red herrings that are being tossed out by these vendors when, as Johnson notes, it is simply a matter of money. I believe that Vonage and others are unable or unwilling to be competitive if faced with the same regulations and expectations that wireline carriers are saddled with.

It is encouraging to see a respected member of the industry call a spade a spade on that issue. (My opinions are not necessarily those of my employer.)

Charlie Wilber
Telephone systems manager
Dartmouth College
Hanover, N.H.

Go Johna! I am glad to read an article in which someone is telling it like it really is. This is a huge issue for 911 centers across the country and the issue is only going to become larger as more and more households adopt VoIP. Thank you for an excellent and accurate column.

Christy Peters
Training coordinator
Seminole County Sheriff's Office
Sanford, Fla.

No gain from teleworking

Regarding your story on how Network World 200 vendors are using teleworking to cut costs (DocFinder: 7123): What a crock! First, if Sun and AT&T became so much more productive from the use of teleworking, why did both show a significant loss in your NW200 list? Nortel didn't appear at all, apparently because it is a "foreign" company.

Sun's downturn eventually will be tied to its poorly thought-out decision to convert to a telecommuting, open-office workforce. Few jobs have the proper paradigm for true telecommuting; there are human and group factors that work against it. No matter what the warm-and-fuzzy, feel-good proponents of telecommuting say, there are just too many distractions for the average person to handle working away from the office.

The most important loss from telecommuting is the synergism that's part of employee interaction. This synergism is largely intangible but is there in most groups and totally lost when people are out of touch most of the time.

I might have been more convinced by the story if Sun, AT&T and Nortel had shown some significant results, but they didn't.

Jim Jordan
Sacramento, Calif.

Death and taxes

Regarding Mark Gibbs' BackSpin column about his mother-in-law's struggle to convince the Social Security Administration that she is not dead (DocFinder: 7124): When you travel, have you noticed that to answer a simple question the airline agent bangs about 400 keys, looks at the screen, bangs away at another 200 keys, looks at the screen and so on until he or she says, "That flight leaves from Gate 32." What is going on? That can't be good software.

And another thing — when will software designers stop keying information to telephone numbers and e-mail addresses? These things constantly change and are therefore not very good as a look-up tool.

Jack Miller
Mentor, Ohio

E-mail letters to jdix@nww.com or send them to John Dix, editor in chief, Network World, 118 Turnpike Road, Southborough, MA 01772. Please include phone number and address for verification.

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Find out what readers are saying about these and other topics.
DocFinder: 7121

STRATEGY SESSION

Jeff Kaplan

Changing views on outsourcing

A recent study by Deloitte Consulting has sparked renewed debate about the business value of outsourcing mega-deals. The study, published last month, found that nearly 75% of the 25 large companies surveyed have had negative experiences with their mega-outsourcing projects. The study found nearly half of these firms have failed to see the cost savings they anticipated from these outsourcing arrangements. As a result, 25% of the companies surveyed have brought outsourced functions back in-house.

These high dissatisfaction and failure rates should come as no surprise to those who have followed the outsourcing business. Many market research firms also suggested that more than half of these deals would fail, even while forecasting substantial growth in both traditional IT outsourcing (ITO) and business-process outsourcing (BPO).

Thinkstrategies recently teamed with the Cutter Consortium to conduct a unique industry survey that compared and contrasted the perceptions of more than 200 enterprise decision makers and IT/network solution providers regarding some important outsourcing issues. We found dramatic differences in the way these two groups view their outsourcing objectives, preferred operating frameworks, contracting time tables and business benefits.

As a consequence of these disparities and traditional outsourcing's dismal success rate, many companies are becoming more discerning about their outsourcing arrangements. Instead of offloading entire IT or business operations to a third party, they are now contracting for more narrowly focused outsourcing services.

A Datamonitor and Everest Group study has quantified this trend, finding the average size of an outsourcing deal fell 18% in the first quarter of 2005 compared with a year ago. This decline came despite a 5% increase in the number of deals signed in the quarter compared with the same period in 2004.

According to Thinkstrategies' research, the three main reasons for the high failure rate of large-scale ITO and BPO projects are:

- Inaccurate assessments of a company's current IT/business performance levels.
- Unrealistic expectations of outsourcing's cost benefits and performance improvements.
- Inflexible outsourcing agreements that lack proper reporting and resolution procedures.

These factors are fueling the growth of application and managed services. These pay-as-you-go subscription services pose less risk to companies than traditional outsourcing.

They also pose an enormous threat to ITO/BPO vendors that have relied on long-term mega-deals to support their costly service delivery infrastructures and staff.

While many ITO/BPO vendors are attempting to reshape their operations and offerings to accommodate users' changing requirements, enterprise decision-makers should carefully evaluate the outsourcers' ability to cost-effectively deliver more narrowly focused subscription services that truly match their company's goals and objectives.

Kaplan is managing director of Thinkstrategies, a consultancy in Wellesley, Mass. He can be reached at jkaplan@thinkstrategies.com.

As a result, 25% of the companies surveyed have brought outsourced functions back in-house.

REALITY CHECK

Thomas Nolle

Who gets MCI, and who cares?

Someone should tell MCI, Qwest and Verizon that the debate over who buys MCI is losing its audience. At this point, most people have reached the "Who cares?" phase. Too bad, because although the "who" has been answered (Verizon won), it's the "why" that we should care about.

Verizon and Qwest didn't have the same motives for wanting MCI. The two RBOCs are sharply different. Verizon has pretty good growth, strong financials and the premier business territory in the U.S. Qwest has a mountain of debt and the least-valuable region (in total spending) of any RBOC. So what gives here? The answer lies in about the year 2008.

In the European Union, managed services are the rule. Even though EU carriers are faced with things such as unbundling, they still have money to launch aggressive network expansion programs that include enterprise service improvements. Managed services were suppressed in the U.S., largely because leased lines were so inexpensive in the 1980s that private networking developed more. You can see by the growing popularity of outsourcing that managed services will be picking up in the U.S., and by 2008 are likely to make enterprise networking profitable again.

Then why buy in now and participate in the near-term decline? Because SBC bought AT&T. The RBOCs all knew that if one of them made a move to get into the enterprise market, the rest would have to follow. SBC did the deed because it knows that Verizon has sales credibility — almost half the major corporate headquarters sites are in Verizon's region. SBC needed to jump-start its enterprise program, and it did.

Qwest needs even more jump-starting. The U.S. is going to end up having three RBOC-based super-carriers. SBC is one, Verizon the second. BellSouth has the most-credible basis for the third, which leaves Qwest waiting to be picked up at some future point, not participating in the growth phase of enterprise networking at all. By picking off MCI, Qwest could have hoped to be the foundation for that third competitor, or at least be more interesting to BellSouth in a down-the-line merger.

For winning bidder Verizon, MCI is more a convenience than a necessity. Verizon could have called on corporate accounts in its region, but with most companies locked in multi-year contracts with an interexchange carrier (IXC), it wouldn't have gotten immediate success. Verizon also would have had to build out its own national network or wholesale pieces of it from others. All of this would have added up to a lot of early cost and not much early revenue.

This raises the question of what Qwest, Sprint, Level 3, Global Crossing, Williams Communications and other enterprise players might now do. Qwest still needs a partner to move forward and is said to be courting BellSouth and Sprint. For sure, there's more mergers and acquisitions to come. Rumors of a deal between Level 3, Electronic Data Systems and Cisco suggest that at least one of the companies may be looking to get into higher-level enterprise services long before 2008, hoping that enough early adopters can be picked off to pay for the cost of developing a new network.

That new-network cost is the main reason we should care about this acquisition debate. No matter which RBOC buys which IXC, the result has to be a program of network modernization based on IP, not only to position for those 2008 managed services but also to stem the hemorrhage of revenue loss by lowering network capital and operations costs. This activity will bridge the equipment vendors through the period needed to get consumer broadband and content ramped up.

It's also interesting that the carriers everyone declared dinosaurs are now the ones climbing the evolutionary ladder. Could it be our standard for evolutionary success needs clarity? Maybe we should have paid more attention to that boring mergers and acquisition debate after all.

Nolle is president of CIMI Corp., a technology assessment firm in Voorhees, N.J. He can be reached at (856) 753-0004 or tnolle@cimicorp.com.

It's also interesting that the carriers everyone declared dinosaurs are now the ones climbing the evolutionary ladder.

NetworkWorld 5/16/05

Backup grows up

As data backup and recovery takes on increased importance, companies are moving from tape to new technologies.

BY MARY BRANDEL

Compared to hot areas like security or wireless, data backup and restore may have seemed like IT's forgotten child — until now.

A perfect storm of disappearing back-up windows (thanks to enormous data growth and nonstop business operations), large-scale catastrophes, increased litigation requiring electronic data discovery and federal regulations governing data retention, has catapulted backup and recovery to IT's head table.

And, reflecting its newfound status, backup and recovery is taking on a more sophisticated, grown-up name: data protection, which encompasses backup, recovery, archiving, retrieval, disaster recovery and business continuity. "This is a phenomenal time for storage, and particularly for data protection," says Arun Taneja, president of Taneja Group. According to IDC, the back-up, archiving and replication software market will grow from $4.3 billion in 2003 to $6.58 billion by 2008, representing 54% of storage software expenditures.

While the term "data protection" covers a lot of ground, it's the first four areas — backup, recovery, archiving and retrieval — that are currently of highest interest, says Pete Gerr, senior analyst at Enterprise Strategy Group.

Companies now realize they must be able to recover specific pieces of data from financial records, e-mail, instant messaging logs and the like if it's subpoenaed as evidence in a legal case, Gerr says.

See Backup, page 40

You're resting the strength of your entire business on that millimeter-thin little tape. That just doesn't work for me."

Brad Green, director of information services at Denton Central Appraisal District

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Microsoft

Backup
continued from page 38

The bottom line is backup, restoration and safe archiving of electronic data can no longer be a "hope it works" proposition.

Tape falls out of favor

"If the one e-mail that may keep the CEO out of court is the last file written to tape, it's going to take a very long time to find that file," Gerr says. Long recovery times mean high legal fees and electronic data discovery service provider costs, not to mention the spotlight it shines on poor records-management discipline, which can lead to further regulations.

Another problem with tape is that despite many advances in the technology, these systems just can't keep up with the volume of data that needs to be stored in ever-shrinking back-up windows. According to a March 2005 survey conducted by Enterprise Strategy Group, roughly half of 163 respondents said their ability to back up and recover data in a timely fashion has been hurt by the limitations of their tape systems.

Start-ups and disk storage heavyweights now are weighing in with tape alternatives, including disk-to-disk backup, virtual tape libraries, content-addressable storage, continuous data-protection devices, new replication and snapshot schemes, data compression techniques and more (see related story on page 41 for definitions).

With disk-to-disk devices and virtual tape libraries, backups can run within reasonable time frames, and more data can be kept online, which enables faster recoveries. Denton Central Appraisal District (DCAD), for instance, switched to a StoneFly Networks disk-based backup system and now can back up its 50 servers in the same amount of time it used to take to back up one.

That's 0.5T to 2T bytes of backup per night, with a routine average of 400G to 600G bytes of changed data written to back-up disk daily, according to Brad Green, director of information services at DCAD, the fastest-growing county in North Texas.

No wonder users have responded to these new back-up technologies with great enthusiasm. Companies spent $1.7 billion on disk-based storage in 2003, according to Strategic Research. And according to the March Enterprise Strategy Group study, 18% of respondents have permanently replaced their tape libraries with disk-based alternatives, and another 58% would consider doing so. Of this latter group, 30% believe they will replace at least some of their tape libraries over the next 24 months.

> **Probably our biggest challenge is creating tiers of data classification so that critical data still makes it to tape and gets carried out of here."**
>
> Joe Panfil, director of enterprise technology services, Chicago Mercantile Exchange

"Disk storage is being used either as an exclusive method of backup or as an intermediate or staging area before going to tape," says Bill North, director of research for IDC's Storage Software service.

While disk backup has traditionally been seen as more expensive than tape, Gerr advises users to consider not just acquisition costs but also operational and administrative costs that tape requires, such as media management and tape swapping. "Tape is much more labor-intensive than disk," he says. "So while disk is more costly to procure, the total cost of managing it is far less than the total cost of managing a tape environment."

But it doesn't disappear completely

When the Texas county's storage needs grew fourfold in one year, it switched to disk-based backup in the form of a 4.2T-byte, $50,000 StoneFly IP-based storage area network fronted by Commvault Systems' QlNetix back-up software. DCAD has since added an additional 5T bytes of disk.

But data is still archived on a Dell tape library — at least for now.

Green's goal is to completely move away from tape. "You're resting the strength of your entire business on that millimeter-thin little tape," he says. "That just doesn't work for me." His plan is to implement a hot site and synchronize data between the two locations over a VPN using replication software from StoneFly, as well as NSI Software's Geocluster technology. "If my plan works, we'll be able to back up to disk offsite," he says.

Tape is still the least expensive means of long-term archival, Green notes, adding he'd continue to use it for very long-term archival purposes. "But for me it's inherently flawed, too subject to failure and too slow," he says.

North agrees, saying that "trucks and grocery carts are still less expensive than the bandwidth required by replication." That's why companies such as Avamar, EMC (with its content-addressable storage system, Centera) and Data Domain are working on data reduction algorithms to compress or otherwise reduce the amount of data that needs to be stored during backups, thus reducing disk costs and minimizing what needs to be sent.

A consumer call center for a large New York bank is looking into software that stores incremental changes rather than blocks of data so that — in the event that it moves to a

Too many T bytes for tape

Hospital network turns to a continuous data protection system.

Hal Weiss, systems engineer at Baptist Memorial Healthcare in Memphis, tends his back-up and recovery environment like a gardener. And just as some plants require shade and others sun, not all applications require the same type of backup.

Weiss is helping Baptist contend with new federal regulations and exponentially increasing data volumes. And, like other hospitals, Baptist Memorial is moving away from paper and film to an electronic environment.

"We've told physicians to meet us on the Internet and we'll give them access to all their patient data, including views of X-rays and lab results, from the convenience of their home or office," Weiss says.

Baptist Memorial comprises 15 hospitals in three states — Arkansas, Tennessee and northern Mississippi. Storage has grown from 2T bytes in 2002 to 138T bytes by the middle of this year. Data is now growing at an 8T-byte clip per year and — to be compliant with the Health Insurance Portability and Accountability Act — must be maintained seven to 21 years, depending on the patient's age.

One of the problems with protecting this volume of data is that traditional schemas using physical tape don't work. "How are you going to back up 138 terabytes to physical tape?" Weiss says. "There's not enough hours in a day, no matter how many tape drives you have."

So Baptist uses multiple tiers of data protection, including host-based mirroring, a Copan virtual tape system, and traditional tape for deep archiving. But it still needed something else for its very complex applications that house data on multiple servers.

An example is Mckesson's Horizon Patient Folder, which relies on two servers that have to be synchronized — a database that keeps pointers to all the images that make up the patient folder and an image server that stores those folders. In Baptist's metropolitan environment, which comprises five hospitals, this application eats up 7.5T bytes of data. "If you tried to back that up on physical tape, it would take 20 days, and to restore it would be 40 days or more," Weiss says. Plus, the data would not be synchronized.

For this application, Weiss turned to Revivio's CPS 1200, a continuous data protection (CDP) system that lets companies restore data to any point in time and recover business applications in minutes.

Unlike snapshot technology, which takes snapshots at predetermined times, CDP systems capture every change made to a file and separately maintain a log and time stamp for every write made to disk. "The effect is that you can literally turn back the clock to any one of those changes," says Bill North, director of research for IDC's Storage Software service.

CDP technology has yet to hit the mainstream, and it's not a technology for everyone. "For users that require ultimate granularity in their recovery operations, CDP is the Holy Grail," says Pete Gerr, senior analyst at Enterprise Strategy Group. "But mainstream users are still somewhat hesitant to deploy the technology."

"We're at the early stages of market development for CDP," acknowledges Kirby Wadsworth, senior vice president of marketing for Revivio. Other vendors include Mendocino Software, Timespring Software and XOsoft.

Even so, a surprisingly large percentage of Enterprise Strategy Group survey respondents (68%) say they were familiar with CDP.

Baptist plans to expand Revivio in 2006 to cover its clinical document applications. By 2007, Weiss hopes to replicate the Revivio backup to another Revivio device at an offsite location for disaster protection.

But this wouldn't be your traditional asynchronous replication. "With traditional replication, you might get a recovery point every four to six hours," Wadsworth says. "With our systems, you could have a failure at noon in Boston, and at 12:01:01 in Chicago, you could effect a restoration of the Boston data, and Chicago would have an exact copy."

— Mary Brandel

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disk-based archival strategy — it will have less data to send over the wire. Officials at the call center were recently given the directive to move away from all physical transportation of media to protect confidential data — which eventually will rule out tape even for offsite storage.

The call center made some preliminary steps in that direction when it recently solved its tape library-based back-up woes with a RAID-based virtual tape library from Sepaton. Day-to-day backups now go to a Sepaton disk-based system, traveling to the IBM 3494 tape library only when it's time for archiving and offsite storage.

With the tape-based system, a full backup could take three days, but by backing up data to a Sepaton virtual tape library, the bank not only can continue using its legacy Tivoli Storage Manager (TSM) back-up software, but also a full backup takes just three hours. Further, buying the Sepaton virtual tape library instead of a new tape cabinet and additional drives represented a 50% cost savings.

The call center plans to take another step in favor of disk backup by purchasing a second Sepaton virtual tape library, locating it in an on-campus building and having it perform duplicate backups and restores using the replication capabilities of the TSM software. The call center will continue using tape for offsite storage until it hatches a cost-effective, offsite replication plan using a data-reduction algorithm.

The problem with many of these data-reduction algorithms is that because data is not kept in one, intact file, there's a process associated with restructuring the data when you need to restore it, North says. "You wouldn't want to do that in a transaction database that processes thousands of orders an hour," he says. "It tends to be used for data that is infrequently accessed but where the time to retrieve it may be shorter than if it's offsite in a tape vault somewhere."

Tape takes up residence offsite

There are other reasons why companies still turn to tape for offsite storage. At the Chicago Mercantile Exchange, trading and clearing applications are replicated between two data centers for business-continuity purposes. Copan Systems virtual tape libraries are installed at both sites to resolve the problem of shrinking backup windows, and both are managed by Veritas NetBackup software. Two StorageTek tape silos take care of archiving.

Critical data does not just get backed up on Copan virtual tape libraries, however, says Joe Panfil, director of enterprise technology services at the Chicago Mercantile Exchange. "Probably our biggest challenge is creating tiers of data classification so that critical data still makes it to tape and gets carried out of here," he says. Less-critical data stays on disk for a few weeks and then gets written over.

Federal regulations require some data to be stored on media that cannot be erased, which eliminates many disk-based storage systems. EMC's Centera is an exception, and the exchange would consider that, Panfil says. "My belief is that tape eventually has to die, but it will be when regulators say there's been some media to replace it that's acceptable," Panfil says. "If we're forced to retain data for seven years, and it has to be external to [the Chicago Mercantile Exchange], tape or optical becomes the only way to do that."

Disk will eventually dominate

According to Taneja, this is only the first phase of backup's maturation, and while tape might lose its place in the back-up environment, it will occur slowly. He recently completed a survey of 250 midsize and large companies, 95% of which said they were not yet ready to let go of tape. "Customers don't want to change too many variables at one time," he says. "That's been their crutch for the last 25 years, and they don't want to lose it."

But in the next phase, which Taneja estimates is 12 to 18 months away, people will become more comfortable with disk-based back-up and thus disk-to-disk replication over distance. "At that point, people will say, 'Eureka — why have tape at all?'" he says because you've established your offsite archive on disk.

Brandel is a freelance writer in Michigan. She can be reached at mary.brandel@comcast.net.

Better than tape

According to the Enterprise Strategy Group, several new technologies have emerged that can be used as replacements for tape backup. They include:

- VIRTUAL TAPE LIBRARY: Software- or appliance-based technology designed to make a disk array emulate a tape library. This provides back-up and recovery performance benefits compared with tape-based solutions but lets users continue using technologies and processes designed to work with their tape environments. Vendors include ADIC, Alacritus, Diligent, FalconStor, Neartek, Overland, Quantum, Sepaton and SpectraLogic.

- NEAR-LINE DISK TARGET: A disk array that acts as a target or cache for tape backup. These arrays typically offer faster back-up and recovery times when compared with tape and are cost-effective because they're increasingly based on low-cost Advanced Technology Attachment disk drives. Unlike virtual tape libraries, however, they typically require configuration and process changes to existing back-up/recovery operations. Vendors include Engenio, Network Appliance and Nexsan.

- CONTENT-ADDRESSABLE STORAGE (CAS): A disk-based storage system that uses the content of the data as a locator for the information, eliminating dependence on file system locators or volume/block/device descriptors to identify and locate specific data. CAS is often used as a new storage paradigm for archiving reference information. EMC's Centera is an example of CAS.

- MASSIVE ARRAY OF IDLE DISKS (MAID): A disk system in which disks spin only when necessary (such as during read/write operations), reducing total power consumption and enabling massive high-capacity disk systems with comparable economics to tape libraries. Copan Systems' Revolution 200T is an example of MAID.

- SNAPSHOTS AND INCREMENTAL CAPTURE: A snapshot is a copy of a volume that is essentially empty but has pointers to existing files. When one of the files changes, the snap volume creates a copy of the original file just before the new file is written to disk on the original volume. As such, IT administrators have a second copy of data saved to disk that they can use for instantaneous recovery or as an offline copy for backups. A variety of vendors offer some type of snapshot capability.

- INCREMENTAL CAPTURE: Vendors in this category can replace existing back-up technologies or co-exist with them. Incremental capture solutions can take snapshots at the block, file or volume level. This gives users more detail when capturing data and offers unique integration capabilities with applications because these products typically write at the block level. FilesX is an example of incremental capture.

- CONTINUOUS CAPTURE: Includes software or appliances designed to capture every write made to primary storage and make a time-stamped copy on a secondary device. The main objective is re-creating a data set as it existed at any point in time, with the goal of being able to rapidly restore applications. Vendors include Alacritus, Mendocino Software, Revivio and StorageTek.

- ARRAY-BASED REPLICATION: These products have traditionally come from large disk array vendors such as EMC, Hitachi Data Systems and IBM. Early products were robust but expensive and only worked between homogeneous arrays from the same vendor. Today, that requirement no longer exists, prices have come down, and new vendors are getting into the game. Vendors such as EqualLogic, Exagrid and Intransa provide replication with their disk arrays at relatively low prices.

- HOST-BASED REPLICATION: Host-based replication software runs on servers. As writes are made to one array, they are also written to a second array. Vendors in this category have made this technology easier to deploy and manage. They include EMC-Legato, DataCore Software, NSI, Softek, Sun, Topio and Veritas Software.

- FABRIC-BASED REPLICATION: Enterprise Strategy Group expects a strong trend toward fabric-based intelligence over the next few years because of a number of potential advantages. For example, the sooner an I/O is captured, the sooner it can be sent to a secondary device, thus enabling better performance. Vendors include Brocade Communications, Candera, Cisco, CNT, FalconStor, IBM, Kashya, Maranti Networks, McData and Troika. A variety of traditional switch vendors are putting intelligent blades into their core products, and third-party developers are porting their applications to the blades.

CLEAR CHOICE TEST

Identity management

Thor thunders over user provisioning tasks

■ BY MANDY ANDRESS, NETWORK WORLD LAB ALLIANCE

Up there with authentication and authorization, account provisioning is one of the big three components in any identity management scheme. In our Clear Choice test of Thor Technologies' latest version of Xellerate Identity Manager (8.01), we found that the platform provides flexible account provisioning across a multitude of products and technologies, supporting even the most complex of workflows.

At its most basic level, provisioning software helps automate the creation of user accounts. The processes and workflows a company uses to create, assign, approve, and audit user accounts all can be managed through this type of software.

Workflows can be configured to automatically create Active Directory, PeopleSoft and Lightweight Directory Access Protocol (LDAP) accounts for new employees from one administrator screen once some basic information about the new user is entered. This greatly improves efficiency by drastically shortening the amount of time it takes to create new accounts or modify current user groups. The provisioning process also can include approvals, such as requiring manager approval before the new user accounts are created, making a central provisioning server key for audit compliance.

Xellerate's architecture comprises the Xellerate Server, an administrative console and a database. The Xellerate Server is the central component of the product, providing the intelligence to implement the configured processes and workflows. It enables the integration with external resources such as LDAP, Web services and custom applications. The administration console includes a Java console application, a Web front-end accessible through a browser, or a custom application built on the API. The database, usually Oracle, but SQL Server also is supported, contains all the processes.

Xellerate is very flexible, supporting simple and complex account maintenance workflows. This flexibility lets organizations implement provisioning around current processes.

Integration support is provided through resource adapters — pieces of code that run inside the server — for a number of enterprise products, including SAP, PeopleSoft and Active Directory. The resource adapters let the Xellerate Server communicate and control how applications create accounts or modify attributes of current accounts. These resource adapters could just be directly writing user information to an LDAP database or making a specific user account function call through an API to make the change. Custom resource adapters can be developed for nearly any application using Thor's developer kit.

We installed Xellerate on a Windows 2000 Advanced Server running Jboss — an open source Java 2 Platform Enterprise Edition application server — and Oracle as the database back end (see How We Did It, above). We integrated with Active Directory, Exchange Server 2000, and a SunOne LDAP server.

Xellerate is a complex product with a relatively steep learning curve, although it is pretty intuitive once you understand the basics. We would like to see some configuration wizards help with the integration and creation for new users.

We implemented a number of scenarios to test the flexibility and complexity Xellerate can support. We set up a policy that would automatically place any new user with "full-time" or "part-time" status in the Employees group of our schema and any user defined as an Intern in the Intern group. We then expanded these processes to automatically have Exchange and Active Directory accounts created when a new user is placed in either the Intern or Employees groups. Testing several accounts, this process worked seamlessly. However, it's important to note that to create the Exchange and Active Directory accounts, you need to have a detailed understanding of how your Active Directory implementation is configured, which might add some complexity to the setup process.

Xellerate also supports self-service and approval workflows. Self-service workflows provide forms and processes that users can complete themselves, further automating tasks and alleviating over-worked administrators. Approval workflows automate the review and acceptance processes of user requests that are often required for compliance. We tested the process of receiving a request from an employee for access to an internal site controlled through a SunOne LDAP server. We implemented a process that receives the request through a Web interface, routes the request to the employee's manager for approval and, once approved, automatically adds the user to the LDAP server. We tested several accounts with this process, and everything worked as expected.

We also extended the first process without incident to add a layer of manager approval for new Active Directory and Exchange accounts. We also created more complex workflows, providing different approval paths based on the requesting user. We established a separate approval chain for contractors requesting access to the internal site than employees, who just required manager approval.

We built processes to pre-populate configuration information for resources, such as Active Directory and Exchange. This lets the provisioning process be completely automated from end to end.

Finally, we set up direct integration with Oracle 9i to Crystal Reports software to create a number of reports from stored procedures, such as what users have which accounts, by application, provisioning date, user ID and the like. The standard reports are useful and easy to read. With the Crystal Reports engine, custom reports can be easily created with any data in the database.

With all the regulations and audit requirements now required for many organizations, provisioning products help automate implementation and track adherence to defined policies for creating and approving application access. Thor's Xellerate is a very powerful, complex tool. While the learning curve is a bit steep to get everything going, once the base is set up and all the integration is complete, you are only limited by your imagination when it comes to process implementation and automation.

Andress is president of ArcSec Technologies, a security company focusing on product reviews and analysis. She can be reached at mandy@arcsec.com.

How We Did It

We installed Xellerate on Windows 2000 Advanced Server (SP 4), using Oracle 9i (9.2.0.1) as the database and JBoss 3.2.2 as the application server. This was installed on a P4 3.0-GHz server with 800M bytes of RAM.

We integrated with Active Directory, Exchange Server 2000 and SunOne LDAP servers for account creation. We then defined several corporate scenarios to implement that provide varying levels of complexity in creating accounts, automating processes and approving requests.

After implementing all scenarios, we tested report generation and created reports detailing which user accounts had accessed each application and reports detailing provisioning tasks by date.

Net Results

Xellerate Identity Manager 8.01

OVERALL RATING **4.35**

Company: Thor Technologies, www.thortech.com **Cost:** $140,000 for full platform license with unlimited servers and rights to all development tools; user licenses range from $2 to $50 based on volume; $25,000 for each adapter license. **Pros:** Extremely flexible; wide support for enterprise applications. **Con:** Complex product with steep learning curve.

The breakdown

Workflow implementation 40%	4.5
Application support/integration 40%	4.5
Reporting 10%	4
Ease of use 5%	4
TOTAL SCORE	4.35

Scoring Key: **5:** Exceptional; **4:** Very good; **3:** Average; **2:** Below average; **1:** Consistently subpar

What's your company's policy on IM?

■ BY LINDA MUSTHALER

Consider this scenario: You have your whole staff assembled for a planning meeting. People have their laptops and BlackBerries to take notes and respond to urgent e-mail. Two employees in the back of the room are sending each other instant messages to keep from nodding off. One sends an off-hand comment to the other about the department's young new intern. Although no one else in the room is aware of this private conversation, it could present significant problems to the company some day.

The fact that this electronic conversation took place using company resources — the computers and communication network — makes this an official company record. What's more, if the day ever came when the intern sues the company over sexual harassment issues, the company could be required to produce a record of that flippant remark that was never intended to go beyond the two guys in the back of the room. Those couple of words, sent "instantly" from one person to another, could be a smoking gun.

Lest you think, "This could never happen to us," let me give you some eye-popping statistics from the 2004 Workplace Email and Instant Messaging Survey conducted by the American Management Association and The ePolicy Institute. They surveyed 840 U.S. companies for their data. Of the companies that said they use IM in the workplace, 58% said the service is used for personal chats. Survey respondents report sending and receiving the following types of potentially damaging IM content:

- Attachments: 19%
- Jokes, gossip, rumors or disparaging remarks: 16%
- Confidential information about the company, a co-worker or client: 9%
- Sexual, romantic or pornographic content: 6%

Those numbers are low. Though I am not an avid user of IM, I know plenty of people who are, and they tend to put things in instant messages that they would never commit to an e-mail message because the service "feels more private."

It all boils down to this: IM is an accepted form of electronic communication, and it should be treated like one. That is, the IT department has an obligation to help the company select the appropriate technology for a messaging service, and implement policies and procedures regarding security, records retention and acceptable usage.

Banning the use of IM for business isn't the answer. Many companies find that IM increases productivity when it is used properly. Companies are urged to take control of IM like they would any other IT tool. In his story for the Wisconsin Technology Network, attorney Brian Paul recommends that companies develop a policy dictating how they handle and retain instant messaging, including an official company stance on IM content and use.

Without the proper policies and controls, your company can find itself taking some pretty big risks.

Musthaler is vice president of Currid & Company. She can be reached at Linda.Musthaler@currid.com.

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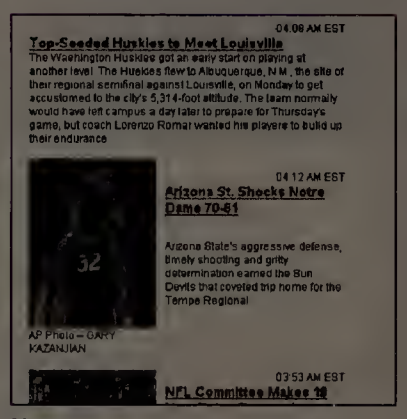

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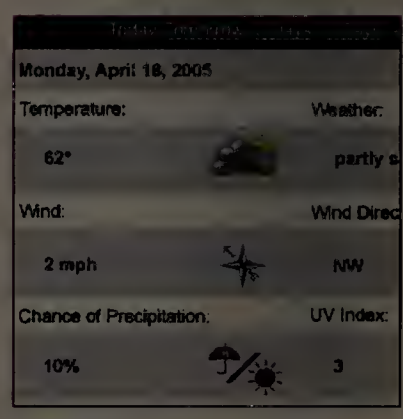

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■ Graphic archive	✓	✓
■ WebsiteCreator	12 pages	12 pages
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■ FrontPage extensions	✓	✓
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QoS talking points

How to navigate the politics of a quality-of-service initiative.

■ BY CURT CORNUM

Politics are a part of virtually all network initiatives, and nowhere is that more evident than with QoS. While most network managers concede that QoS is a prerequisite for real-time applications such as VoIP and interactive video, many of those same managers are reluctant to embrace QoS for data applications because of the political pitfalls. This reluctance is starting to impede business productivity and is increasing bandwidth costs.

A network manager is often stretched in many directions by department heads who try to use their clout to get their applications pushed to the top of the heap.

The benefits of QoS are real: More predictable performance, more efficient use of bandwidth, and more detailed control of network resources. However, because QoS has the ability to provide better (or worse) service to specific applications, the stakeholders of those applications have a vested interest and, therefore, the politics also are quite real.

To effectively implement QoS, network managers need to develop not only a strategy for deployment, but they must also develop a communication plan to set the agenda and reduce the political pressures that have derailed many QoS initiatives. To help with this effort, consider the following:

1. Set realistic expectations.

Create a "QoS 101" presentation or primer document that provides a high-level overview of QoS: What it is (and isn't), how it works and the benefits to the organization. QoS is a complex topic, and creating this primer will help business managers understand the technology and provide a common language to ensure that the IT staff is delivering a consistent message.

2. Clearly determine the objectives.

Best practices suggest that certain applications should be identified and given priority. In other words, these traffic flows should be "promoted." Another school of thought suggests that because there are specific applications that create network congestion (such as Microsoft's SMS and FTP), it is more efficient to identify these flows so that they can be de-prioritized or "demoted." From a practical standpoint, a combination of the two approaches likely will be used. For example, a leading financial services company initially focused on protecting its network by "demoting" non-interactive traffic and bulk file transfers. With those applications pushed into the background, the company then could "promote" its revenue-generating applications, which were more interactive and transaction-oriented.

Regardless of the initial approach, the critical success factor is to ensure that the overall objectives for QoS are well documented and endorsed by an executive sponsor before deployment.

3. Classify traffic based on technical profiles.

Most networks are shared resources that provide connectivity to multiple business units. If you ask any business manager, he will say that his application is mission-critical and should receive preferential treatment. This is the point where politics can overwhelm the project. To promote objectivity and consistency, terms like mission-critical and best effort should be avoided.

Instead, the focus should be on creating profiles based on the technical aspects of the traffic flows. These profiles (see graphic, below) should include the service-level requirements for each application (such as protocol, packet size and bandwidth) as well as its ability to deal with the effects of congestion (for example, delay, jitter and packet loss).

4. Build a strong cross-functional team.

Implementing QoS is not for network novices. With tools like Weighted Fair Queuing, Random Early Detection and Link Fragmentation at their disposal, it is critical that engineers understand the function and interaction of each tool before developing QoS policies. Those who handle operations and capacity planning will need to interpret traffic flows at a more detailed level than before to determine if the QoS policies are having the desired effect. To promote interdepartmental communications and knowledge transfer, a virtual team consisting of members from each area should be formed. Also, sufficient training dollars should be included in the business case for initial implementation.

5. Start small and get a quick win.

After the QoS policies have been developed, a small number of sites should be selected for a controlled introduction. Generally speaking, QoS will have the biggest effect on sites that match the following criteria:

- Slower speed WAN links (less than a T-1).
- Periods of transient congestion (not chronically oversubscribed).
- Combination of interactive (foreground) and non-interactive (background) traffic.

The initial sites should match these criteria and have the backing of the largest stakeholder. Have network-monitoring tools in place to analyze the traffic flows and modify the policies if they produce unexpected results. After IT validates the policies with live traffic, communicate the results to the stakeholders and the executive sponsor.

At some point, all enterprise networks will have to provide differentiated services and doing so on a large scale is a significant undertaking. By proactively developing a deployment strategy and communication plan, network managers can set the agenda, reduce the political pressures and ultimately provide more predictable delivery of all traffic throughout the network.

Cornum is senior manager of strategy for the consulting practice of Calence. He can be reached at ccornum@calence.com.

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QoS categories

One way to de-politicize QoS deployment is to create profiles based on the technical aspects of the various types of traffic flows on your network.

	Profile/QoS requirements					
Classification	**Protocol**	**Packet size**	**Bandwidth**	**Delay**	**Jitter**	**Loss**
IP Voice	UDP	Small	Low	Low	Low	Low
IP Video	UDP	Variable	High	Low	Low	Low
Certified	TCP/UDP	Small	Low	Low	Moderate	Low
Express	TCP	Small	Low	Low	High	Low
Business	TCP	Variable	Moderate	Moderate	High	Moderate
Standard	TCP	Large	High	High	High	High

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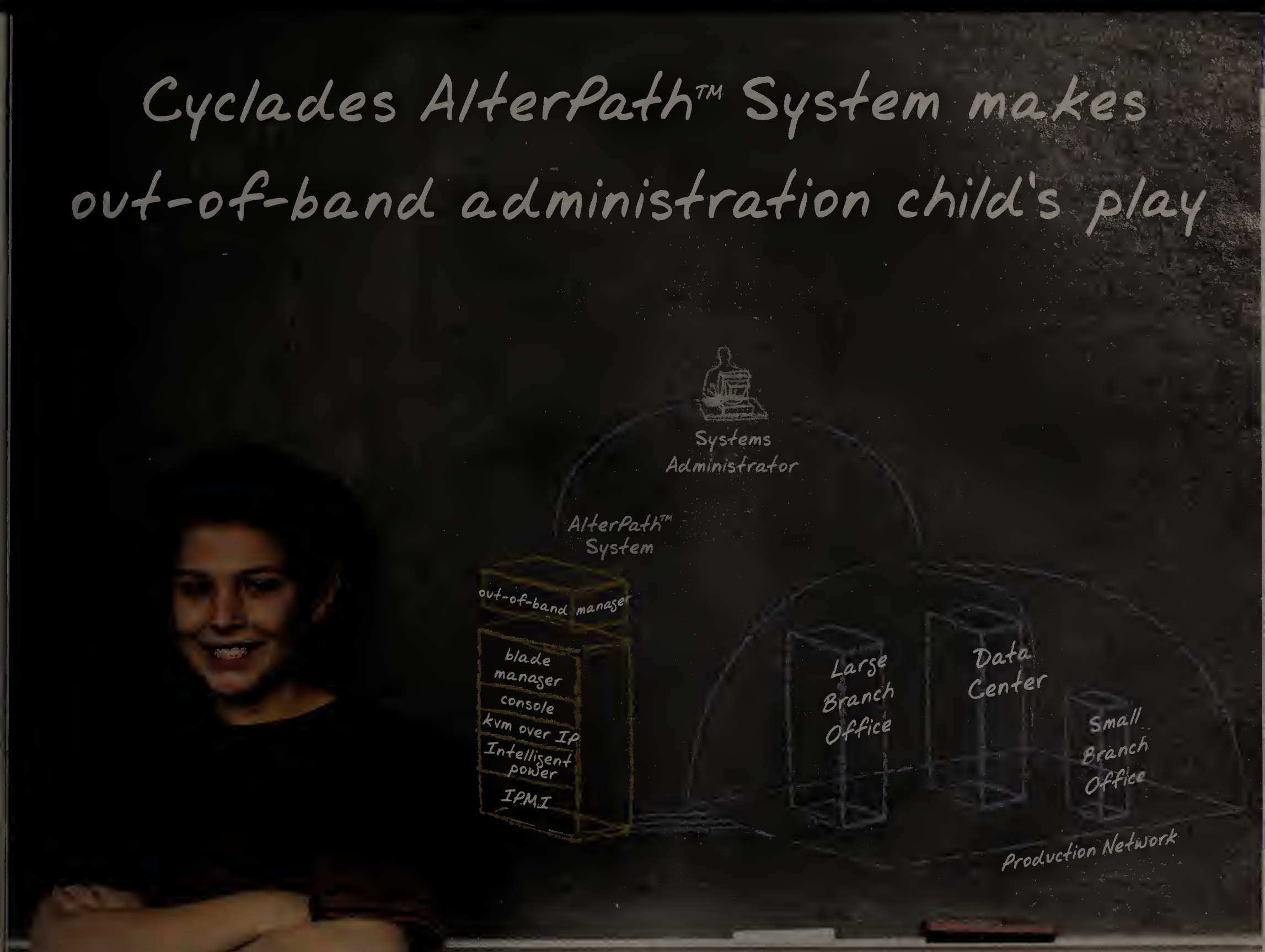

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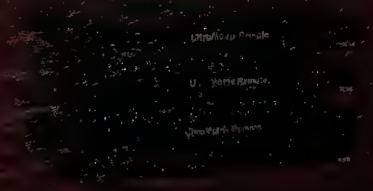

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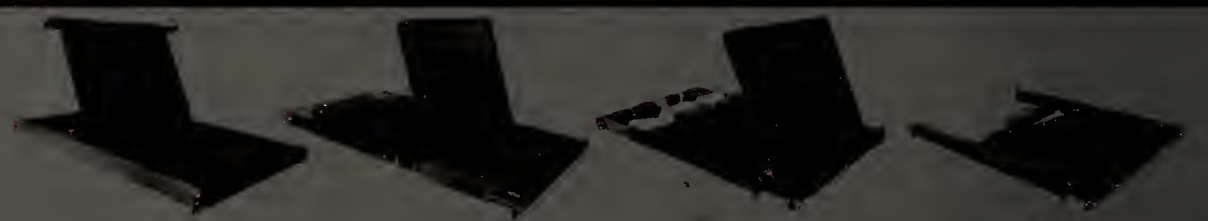

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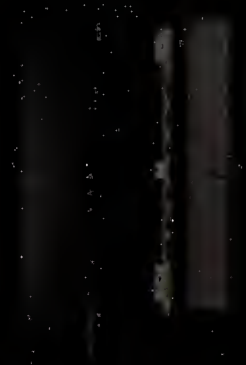

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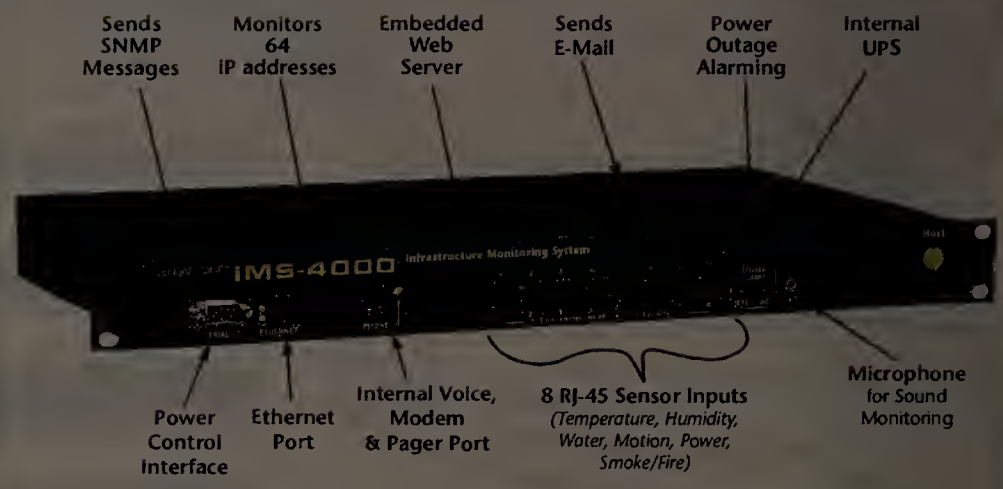

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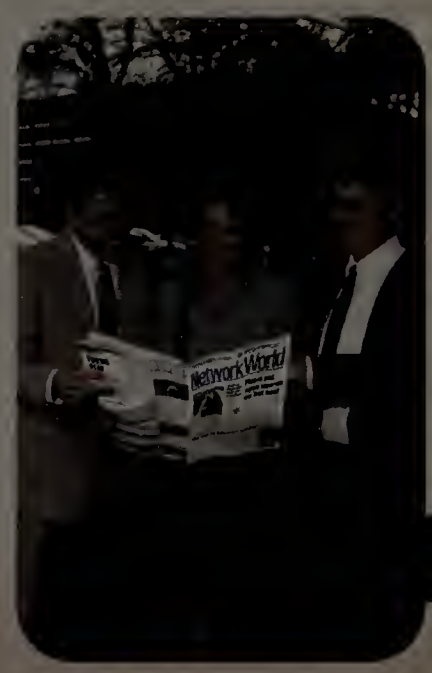

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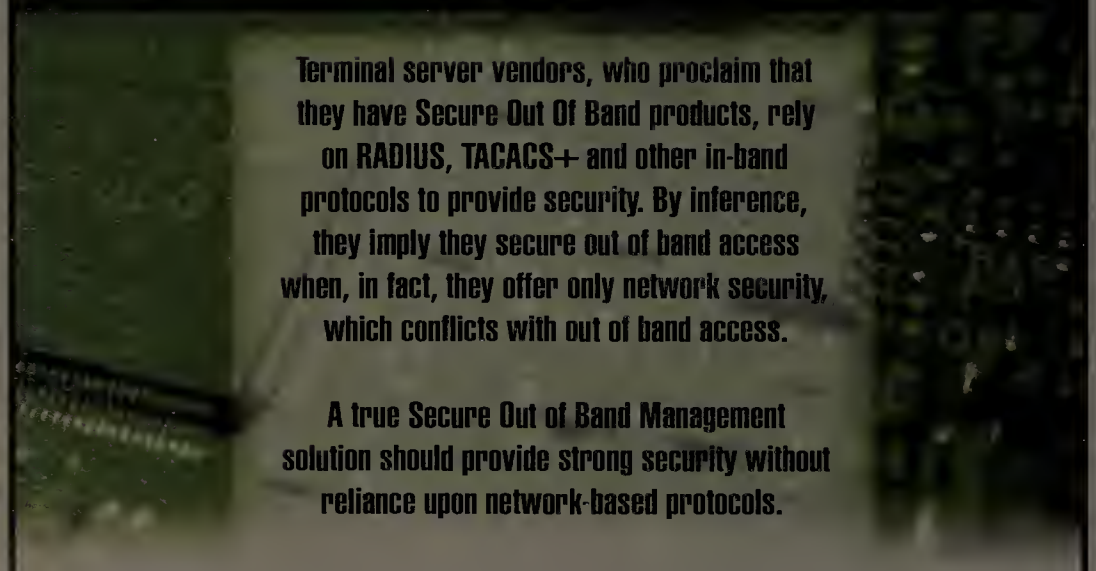

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Jane Weissman, Sales Operations Manager
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New York/New Jersey
Tom Davis, Associate Publisher, Eastern Region
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Agata Joseph, Senior Sales Associate
Internet: tdavis, elisas, ajoseph@nww.com
(201) 634-2300/FAX: (201) 634-9286

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(508) 460-3333/FAX: (508) 460-1237

Mid-Atlantic
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(610) 971-1530/FAX: (610) 975-0837

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Microsoft

continued from page 1

Security Assertion Markup Language (SAML).

"The trick is to build a framework that all these security systems can work in," says John Shewchuk, CTO of distributed systems for Microsoft. "It's mainframe, it's Java, it's everything."

Observers are applauding Microsoft for stimulating open discussion with its "Seven Laws of Identity," a manifesto published last month on the blog of Microsoft Directory Architect Kim Cameron that lays out the dynamics of digital identity.

"The industry would be a better place if we can build on these laws," says Pamela Dingle, a consultant with Nulli Secundus. "This is a beginning."

But there isn't universal appeal for Microsoft's implementation of the Identity Metasystem, described in a white paper published last week.

The Metasystem, in essence, is a network layer that carries all identity traffic regardless of protocol or format, much like TCP/IP carries traffic regardless of underlying network protocols such as Ethernet, frame relay or X.25.

In the Metasystem, when identity data reaches its destination, a software-based translator turns the data into the format needed to access a particular resource. The Metasystem defines certain requirements such as ways to express identity; negotiate the exchange of identity data; establish trust between network nodes; and integrate disparate identity token formats such as Kerberos tickets, X.509 certificates or SAML assertions.

Microsoft says users can plug their access control infrastructures and corporate applications into this identity architecture without rewriting any code.

The rub is that the proposed Metasystem relies on WS-Trust and other Web services protocols created by Microsoft and IBM, a factor critics say could be a showstopper until those protocols are submitted to a standards body.

"I'm real interested to see if they can do any-to-any integration," says Dave Miller, chief security officer for Covisint, best known for creating an integration hub for the automotive industry. "IBM tends to support what they write and Microsoft is even worse. They support their stuff first and everyone else's never."

Microsoft's planned Metasystem implementation revolves around a variety of tools: the company's new technology called Info Card that lets users aggregate their identity information and control its release; a middleware technology under development called Indigo; Active Directory and the Microsoft/IBM controlled slate of Web services protocols, including WS-Trust, WS-Secure Conversation, WS-SecurityPolicy and WS-MetadataExchange.

"It's a brave new world with a whole set of specifications that have been developed outside the real world — at least outside of our real world," says Bob Morgan, senior technology architect at the University of Washington and a member of the steering committee for the Shibboleth federated identity project for Internet2.

While IBM announced support for WS-Trust in last week's release of Tivoli Federated Identity Manager, other big-name players are holding off.

"As soon as WS-Trust gets submitted to a standards organization, Sun will aggressively pursue implementing the standard in our solutions," says Sara Gates, vice president of identity management for Sun.

IBM's Tony Nadalin, co-author of WS-Trust, says the specification along with WS-Secure Conversation is likely to be submitted to a standards body in the next three to four months.

Microsoft is balancing its work on those protocols, a strategy Microsoft officials say was blessed last month by Bill Gates, the company's chief software architect.

WS-Trust is being used as the foundation for what Microsoft calls Security Token Service (STS), lightweight gateways for servers and clients that negotiate the exchange of security tokens, such as Kerberos or SAML, and that can translate tokens into different formats. IBM is backing the same STS model.

The key is STS can be used to integrate newer systems that rely on SAML with older systems that might use Kerberos or mainframe security architectures. The model is relevant internally and for secure access control between partners on the Internet.

Last week, Microsoft demonstrated at the Digital ID World conference a Win32 file sharing application using standard Windows authentication and STS technology to accept other security tokens for user authentication.

Start-up Ping Identity is working on developing STS versions for Java-based clients and servers.

On the desktop, STS is part of Info Cards, which holds various forms of user identity stored locally in user repositories such as directories. Users can aggregate personal data into what Microsoft calls "claims," which contain only the information needed to access certain resources.

"This is not the son of Passport," Cameron says, referring to Microsoft's failed attempt to create an identity system for the Internet.

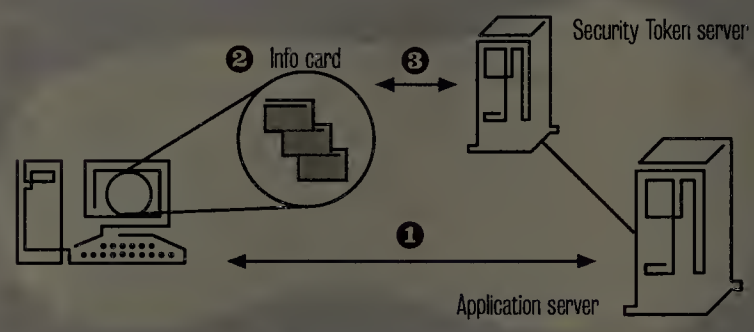
On the server side, STS is deployed in front of resources as an access control point. Those resources can be configured to talk only to an assigned STS so only clients with approved security tokens — users or other servers — can gain access.

Active Directory also can be used as an STS, and Microsoft officials said a version of the directory tuned for that capability is a possibility. The forthcoming Active Directory Federation Services, due to ship by year-end, will be the first step toward integrating identities in the directory.

Microsoft officials did not lay out a timetable for delivery of all the pieces to build an infrastructure that adheres to its Identity Metasystem model. Indigo and Info Cards are expected to be a part of Longhorn. ■

Identity exchange

Microsoft is developing technologies to support a Web-services based identity system that not only lets users control their personal data, but provides back-end services for the integration of different identity technology such as Kerberos, X.509 and SAML.



1 Client makes a request to access application, which asks for specific pieces of identity information to approve sign-on.

2 Microsoft's Info Card technology presents user with appropriate card or cards, which can be stored on his machine or in a network directory, that provide that information. User clicks on the identity card they want to send.

3 Security Token Service (STS) negotiates the exchange of the identity information and acts as an integration point, which can transform one identity protocol into another.

Renovator

continued from page 14

50 phones, all IP-based, in Stever's group. Within a month PPL added a Nortel Succession 1000 and 300 IP phones in a nearby building and tied it to the 81c over dual IP trunks. "This let us prove out trunk- and line-side IP on a larger scale," Stever says.

Both of those facilities, as well as four others that were upgraded next, had been supported by 7,000 lines of Centrex, the replacement of which figured prominently in the project's ROI justification.

Replacing Centrex eliminated some $100,000 in monthly charges, Stever says. He agreed to have $1 million in Centrex charges removed from the budget in the year of implementation. "That was a little challenging," he says. There was no turning back.

Installation of those first hybrid PBXs was completed in the middle of last year and, based on that success, the company started to roll out VoIP as the new telephony standard. "It's an evolutionary process," Stever says. "We continue to evolve 5% to 15% of our lines to VoIP per year, and later this year should hit 50% penetration across the company."

Hybrid vs. pure VoIP brought about concerns about reliability.

"Our experience has been far better than we projected," he says. "But when you have critical areas like a trading floor that is trading gas and electricity across the United States, the thought of putting pure IP up there scared the hell out of me. And we have several critical functions like that."

Now PPL buys nothing but IP. "As we replace systems or bring a new building online, it's all IP," Stever says.

The conversion — line-side VoIP, full IP trunking, centralized voice mail and others — is projected to lead to another $1 million in annual savings by the time the project is completed in two years, Stever says. "So far those projections are right on track."

The new QoS architecture also has enabled videoconferencing to flourish. Where once the company had a handful of systems linked via ISDN, today it has 28 IP-based video systems.

One lesson about convergence that Stever learned: Integrating voice and data groups can pay dividends in unexpected ways. "Telecom groups predate IT in most organizations," Stever says. "And many develop their own procedures for things like outage notifications and change requests. When we merged the groups some of our best efficiencies came from handing off some of the tasks the voice group did to other groups like the help desk." ■

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BackSpin Mark Gibbs

Online music: Consumers will win, but no justice

The online music market battle is heating up all over again. Just when you thought things had settled down, along comes Yahoo with its Yahoo Music Unlimited service offering unlimited downloads from a library of 1 million songs for $6.99 per month.

Consider the market muscle that Yahoo has and that Napster and RealNetworks charge $15 per month for similar services. You don't need a degree in economics to see that online music selling is going to change dramatically.

What's the catch with Yahoo Music Unlimited? The catch is you are renting, not buying, the music.

The way Yahoo will enforce its rental scheme is by only offering files encoded in Microsoft's Windows Media Audio (WMA), which includes a Digital Rights Management (DRM) system that no one has so far managed to break. Through the DRM system you will have to log on and synchronize your collection with Yahoo at least once per month, otherwise your music will stop being playable.

But the service can't be used with iPods or any other device that doesn't support WMA.

According to several reports, music executives like this concept. That's because a subscription model allows more people to hear a wider range of music without, in theory, the music copyright holder (presumably them) losing control.

That's great in theory. Once the Yahoo service gets any traction in the market, hackers will focus on the problem and it will be goodbye to Microsoft's DRM. The hackers are interested and active.

There's already a work-around available because — and this is key to the problem that everyone seems to forget in all of these media business schemes — it is all just bits: Just play the music using whatever WMA-compatible player you please while running a tool like Total Recorder and you can grab the bits as they pass through the audio subsystem.

Anyway, assuming that you aren't going to "steal" the music, the Yahoo Music Unlimited rental system means that if you want to burn any CDs with the tracks you have downloaded you will have to buy them. Here is where Yahoo really upsets the financial apple cart (or as we will discuss, the "Apple cart"): Rather than the 99-cent price charged everywhere else, Yahoo plans to charge only 79 cents.

This lower pricing per track is really important not just to consumers but also to the competition because it's going to kick off a bloody price war that could really damage some of the players. Just consider that Napster had about $139 million in cash and equivalents at the close of 2004 and RealNetworks had about $370 million.

Unless these companies reduce their pricing to match or better Yahoo's, they could easily see their market shares diminish. Following Yahoo's announcement, RealNetworks' share price dropped 22% and Napster fell more than 30%.

But what about Apple, you ask? Its iTunes service is the 800-pound gorilla of the online music business and obviously the company's cash reserves are rather greater than the other players (as of December, Apple had $6.5 billion in cash, cash equivalents and short-term investments) and even its share took a 3% hit on the Yahoo news.

This makes sense, as the potential affect of Yahoo Music Unlimited on iTunes could be significant. The Yahoo service is not only less expensive per track but also lets you download and listen to any amount of DRM-controlled music you please, a far better deal as far as consumers are concerned.

Unless they can change their business models, Napster, RealNetworks and even Apple stand to lose their relevance to the online music business. Despite their endless whining, griping and posturing, the record companies (along with consumers) will be the ultimate winners. There is no justice.

Sing you song to backspin@gibbs.com and check the lyrics on Gearblog (www.networkworld.com/weblogs/gearblog).

'NetBuzz News, insights, opinions and oddities

By Paul McNamara

Readers get their turn

It's been too long since I've turned this forum over to reader e-mail, so here goes:

A recent column about Stamps.com described its acceptable-use policy that threatens legal action against anyone who circumvents the company's screening system to buy customized postage that depicts a celebrity or criminal — which is prohibited — and then brags about it publicly.

"I can't believe that Stamps.com actually thinks that its non-publicize paragraph would stand up in court," writes Jeff Janner. "I'm no lawyer, but I'm pretty sure that you can't assign blame for your own failings onto someone else. With that clause, they could do away with any oversight of what's being submitted and/or produced and then sue for damages if it becomes known that they are allowing such violations. . . . That said, I expect to see Microsoft start including a similar paragraph in all of its license agreements."

My tut-tutting over the latest batch of campus music thieves having done their dirty deeds via Internet2 was overblown, according to one reader.

"Most students don't know about Internet2, nor do they care," writes Craig Paul, an IT professional at the University of Kansas. "They just access 'the Internet' and if the link is faster, so much the better. So all the fuss about Internet2 and stealing is a bit of a false alarm. Our commodity Internet connection is nearly as fast as our Internet2 connection!"

A column about ComputerRepair.com brought a number of criticisms from readers who dislike the idea of an online marketplace that requires IT professionals to work for a fixed fee per job.

"I have had no experience with ComputerRepair.com and I never will," writes Philip Overman. "The business model may be great for the owner but it is not for the IT professionals that have to work to fixed-amount jobs. The IT business is too complex to be able to define narrow scopes of work or to be able to determine the amount of time it takes to perform those scopes."

A column about the explosion of interest in mobile text messaging brought this note of concern from a reader:

"Cell phone users and driving is bad/dangerous enough," writes Don Cherry, "so can you imagine the potential problem of driving and using text messaging? And the drivers being teenagers, no less. Some serious consideration needs to be applied to cell phone use in vehicles."

My rant about pseudo-journalists who accept money from vendors to go on TV news programs and tout their products drew a heartening number of supportive messages. The column explained that we don't do that here and carried the headline: "We're not for sale."

"Thank you for your editorial disclosure about *Network World* not being on the take," writes Joe Kwak. "It is a sad thing in this day and age that editorial objectivity needs to be affirmed and reaffirmed. As they say, it is sometimes the acts of a few that ruins it for the many."

Another piece attempted to debunk a Stanford spam study that said the typical worker spends 10 full workdays a year — a minute and a half every hour — shoveling junk e-mail. A number of readers called me all wet over that one, and then there was this take:

"Reading your column got me thinking about spam, and I come to a really depressing conclusion," writes Jim Carey. "Overall, the Internet infrastructure is like Gulliver in Lilliput, a helpless giant being tied down by the little people doing spamming. Collectively the Internet has been unable to solve this problem! Despite all the smart people, all the technology, they are collectively unable to devise and implement a plan that would prevent massive spamming."

Depressing is the right word, all right.

Now that I've made more room, you should know that the address is buzz@nww.com.

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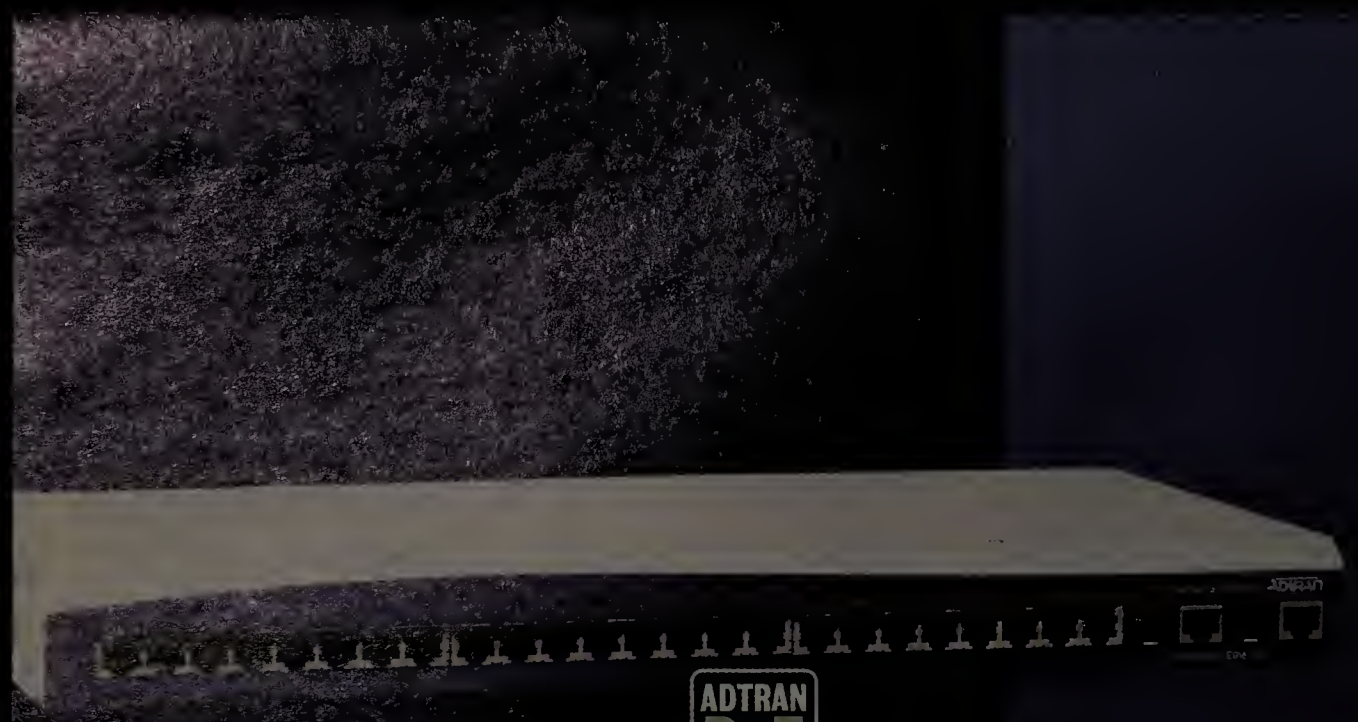

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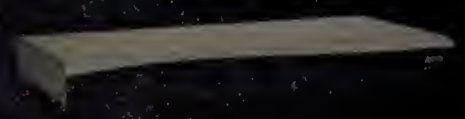

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